Tabulæ Britannicæ:

THE BRITISH TABLES:

Wherein is contained

Logistical Arithmetick, the Doctrine of the Sphere, Astronomicall Chronologie, the Ecclesiasticall Accompt, the Equation and Reduction of Time. John Bawley

Together with the Calculation of the Motions of the Fixed and Wandering Stars, and the Eclipses of the *Luminaries.*

Calculated for the Meridian of *London* from the Hypothesis of *Bullialdus*, and the Observations of Mr. *Horrox*,

BY

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To the Reader.

THe benefit of *Aſtronomy* is ſo generally known, that it will not need my *Commendation*; or elſe I might tell thee, the *truth* of *Hiſtory* doth much depend upon this *Science*, & *Geographie* would be lame without it, nay *Divinity* it ſelfe, may admit her as a

handmaid to interpret ſome *texts* of *Scripture*: but if in this *licentious Age* things meerly *ſpeculative* here, or the *thoughts* of things *reall* hereafter ſeeme unworthy thy *conſideration*; yet that ſure will be accounted pleaſant which is alſo profitable and now what greater *profit* doth come by any *trade* to private men in particular, or to any whole *State* in generall, then doth by that moſt *excellent*, & never ſufficiently *admired art* of *Navigation*? in which how neceſſary this *Science* is; not onely

onely we of this *Nation*, but all the *World* doth witneſs.

Whether it was for *this* or for the *former reaſons*, or for *them* altogether, that the moſt *Civill Nations* of the *World*, the *greateſt Princes*, and moſt *famous Scholars* have ever *ſtudied* and *continued* this *excellent Science*, with great *addition* of new *experiments*; I ſhall not now *diſpute*, it is *ſufficient* for us to know, that it had its *originall*, if not from *Adam*, yet at leaſt from *Seth*, and from him *imparted* unto *Noah*, and the *knowledge*

thereof *continued* as it were by a *lineall ſucceſſion* to *Abraham*, *Moſes*, and all the *Egyptians*, from thence *transferred* to *Greece*, and now at length to us by Noble *Tycho*, *Kepler* and *Longomontanus*, whoſe *ſubtile Inventions Bullialdus* doth fully *demonſtrate* in his *Syſtema Phylolaicum*, according to whoſe *Hypotheſis*, and the *Precepts* of *Jeremy Horrox* our *Author* hath *compoſed* theſe *Planetary Tables*, which he termes *Tabulæ Britannicæ*, as being *fitted* to the *Meridian* of *London*,

don, the moſt famous *City* in this our *Iſland* of *Great Britain*. If any ſay that this is *actum agere*, an unneceſſary work; becauſe already done by *others*; I anſwer for the *Author*, that as they are *Publiſhed* in his *abſence*, ſo I *perſwade* my ſelfe it is without his *conſent*, for they are *Publiſhed* at the *requeſt* of *Friends*, who *like theſe*, but do not *diſ-reliſh the other*.

But this Commendation I hope they may have without offence to any, that the paines in Calculating here is far leſſe then

then in Bullialdus; *If any errour be in the Hypotheſis, it is not an errour of our Author or if it were, he would (I do believe) be glad to ſee it mended by another: till ſuch an emendation be, uſe theſe enſuing Tables, and retain a charitable conſtruction both of what the Author hath Writ, and the Editor Publiſhed.*

Vale.

THE PRECEPTS OF *CALCULATION.*

CHAP. I.

Of Logiſticall Multiplication and Diviſion.

IT is not our purpoſe here to deliver the uſe of the Celeſtiall Sphere, we rather remit the Calculator to the Books of *Pitiſcus*, *Brigs*, *Snellius*, and others, who in theſe things are abundantly ſatisfactorie. We therefore

come neerer to the uſe of our Tables; where if any thing in the Sphericall part of Aſtronomy, beſides the Tables we have expoſed be further wanting, in our precepts we ſhall preſcribe a remedy for theſe defects.

In the beginning therefore we ſhal deſire the Reader may be not altogether ignorant of Vulgar Arithmetick, & that which is called Logiſticall Sexagenary; but muſt either be able of himſelf, or learn anew the Addition and Subduction of ſimple and Sexagenary numbers, (examples of which operation do abundantly follow hereafter) and what wants for Multiplication and Diviſion we ſhall here teach. But we propoſe that method which builds not upon the uſuall Sexagenary Table, but doth facilitate theſe operations by help of a new Table of Logiſtical Logarithmes: nor this unadviſedly, or drawn thereto by the ſole example of *Kepler*, who by *Nepairs* method hath made a Table of that kinde, but for other uſes which will be evident in the Doctrine of Eclipſes, which elſe would have required a tedious worke for their finding out.

out. This Table contains three columns; in the first of which are expressed the parts of a degree, proceeding on by five seconds: the next column contains the Logarithms of those parts, together with their differences: and the third column contains the parts of time in hours and minutes; so that the Logarithmes are common to the parts both of time and motion, for by these names for distinction sake shall we call the two marginall columns of the Table, though not perhaps altogether properly. But because that in some things we have use of Logarithmes of parts greater then a degree, we have extended the Table to 12 minutes of motion further, proceeding (in regard of the small differences) by 10 seconds, and contenting our selves with the column of motion, that of time in this extension being needlesse.

Precept 1.

Multiplication is done by adding the Logarithmes of the two numbers; for the sum is the Logarithme of the product.

Precept 2.

Diviſion is done by ſubtracting the Logarithme of the Diviſor from the Logarithme of the Dividend; for the Remainer is the Logarithme of the Quotient.

But becauſe in theſe Tables a ſimple Multiplication or Diviſion is ſeldome required, but as it concerns the Rule of Proportion, therefore the Calculator muſt know, that for the moſt part we uſe a *tacit* Addition or Subduction of the Logarithm of an Integer, which is 1000000, (which for its like uſe we call the Radius) the reſult being then the fourth proportionall.

Example.

If 1° or 1 degree give 4′ 26″, what will 16′ 0″?

	′	″	*Logarith.*	
Multipl.	4	26	886694	*Adde.*
	16	0	942597	
Product	1	13	1829291	*Summe*

So the anſwer is 1′ 13″.

Example.

Example 2.

If 24′ 50″ give 1°, what will 4′ 10″?

Divide	4′ 10″	1884164	
	24 50	961688	*Subtract.*
Quotient	10 9	922476	*diff. or rem.*

Precept 3.

The like may be uſed in time alſo two wayes; either by ſuppoſing a day to be the Integer, and then yon uſe the third column of the Table, wherein are hours and minutes, or by ſuppoſing an hour to be the Integer, and then for the parts of hours you may uſe the firſt column.

Precept 4.

But if at any time it be required to uſe both the columns, it may be done without difficultie by the rules aforegoing, as in this Example. If the Sun in one day move 59 *m.* 37 *ſec.* how much moves he in 21 *hor*, 39 *m.* Adde the Logarithmes of 21 *hor.* 39 *m.* and 59 *m.* 37 *ſec.* together; the ſum (ſubtracting the Radius) is the Logarithme of 53 *m.* 46 *ſec.*

Precept 5.

We may also work in the use of the *Ephemerides* for finding the Planets motions at any time, and for computing the times of the Aspects, by using degrees and minutes as if they were hours and minutes, by the Golden Rule, after that way which concerning the use of this Table I have desired may be prefixed before Mr. *Lilly*'s *Ephemerides*.

Precept 6.

Lastly, if any number whereof we have use be not in the Table, by augmenting the titles we may work with degrees and minutes, as if they were minutes and seconds; and again in the Quotient restoring the titles.

I forbear to burden the Book with examples, for he that is versed in numbers cannot but understand these things of himselfe, and also finde other uses of the Table then are expressed.

CHAP.

Chap. 2.

Of the Doctrine of the Sphere neceſſary in theſe Tables.

After this Table follow next Tables of Right Aſcenſions and Aſcenſionall differences, and a Table of Declinations and Meridian angles; in which there wants not much to expedite the whole Spherical Doctrine, as far as is neceſſary in theſe Tables. Therefore let the Calculator attend to the following Precepts of this Chapter, and from thence learn, as followes.

Precept 7.

The Declinations and Meridian angles are found by the ſigne in the head or foot, and the degree in the right ſide if the ſigne be in the foot, or in the left ſide, if it be in the head: for the common angle gives either of the things ſought under its title, uſing the Part Proportionall both here and whereſoever elſe is needfull, whereof let it ſuffice once to admoniſh.

Example.

If 12 *gr.* 15 *m.* 30 *ſec.* *Aries* be in the meridian, there is given in the Table

The Declination	4° 51′ 41″
The Meridian angle	66 57

Precept 8

The Right Aſcenſion by the Table following is had by the ſigne in the head, and the degree in the left ſide; for in the common angle is the Right Aſcenſion.

Example.

♈ 12° 15′ 30″ gives the Right Aſc. 11° 16′.

Precept 9.

The Aſcenſionall Difference of any part of the Zodiack is found by the degree of Declination in the left ſide, and the degree of the Elevation of the Pole in the head, for the common angle (uſing a double proportionall part if need be) gives the difference ſought.

Example.

The Aſcenſionall difference of *Aries* 12 *gr.* 15 *m.* 30 *ſec.* by the Declination

tion before inquired 4 *gr.* 51 *m.* 41 *ſec.* under the Elevation of the Pole 51 *gr.* 32 *m.* is found to be 6 *gr.* 8 *m.*

Precept 10.

Alſo by the Right Aſcenſion and Aſcenſionall Difference the Oblique Aſcenſion may be found. If the point of the Zodiack, whoſe Oblique Aſcenſion is ſought, be in Northern ſignes, ſubtract the Aſcenſionall difference from the Right Aſcenſion; if in Southern ſignes, adde it, and the reſult is the Oblique Aſcenſion. As in the *Example*, the Oblique Aſcenſion of *Aries* 12 *gr.* 15 *m.* 30 *ſec.* is inquired. From the former rules is given the Right Aſcenſion 11 *gr.* 16 *m.* and the Aſcenſionall Difference 6 *gr.* 8 *m.* therefore ſubtract 6 *gr.* 8 *m.* (becauſe the Signe is Northern) from 11 *gr.* 16 *m.* the remainer 5 *gr.* 8 *m.* is the Oblique Aſcenſion.

Precept 11.

But if the Oblique Deſcenſion be ſought, uſe as before the Aſcenſionall Dif-

difference, yet with a contrary title; as in this Example, the work done, the result is 17 *gr.* 24 *m.* the Oblique Descension.

Precept 12.

In this place also are other things to be taught necessary in the following use of the Tables. Therefore let the Calculator learn from that Table which we have proposed to convert as well horary scruples into equinoctiall parts, as these into the other: which practice being so easie, will be sufficient to teach by Examples.

Example.

To convert 142 *gr.* 18 *m.* 33 *sec.* into scruples of hours, the Table will afford these numbers.

140°	9^h 20′ ″ ‴
2	8
18′	1 12
33″	2 12
Summe	9 29 14 12

In like mannner, if 16 *hor.* 23 *m.* 42 *sec.*

ſec. be to be converted into equinoctial degrees, by proceeding the contrary way, the work will be this.

16^h	240°	0′	″
20′	5	0	
3′		45	
40″		10	
2″			45
Summe	245	55	45

Other examples will be needleſſe, onely let the Calculator attend the titles expreſſed in the head of the Table, for theſe name thoſe which are taken out of the Table.

Precept 13.

Theſe things premiſed, the Right Aſcenſion of the Mid-heaven, and thereby the Mid-heaven it ſelf will be eaſily found: for the hours from noon (converted into Equinoctiall degrees) being added to the Suns Right Aſcenſion, do make the Right Aſcenſion of Mid-heaven, which ſought in the Areas of the Table of Right Aſcenſion gives the Mid-heaven.

Ex ample.

Example.

Let the Sun be in *Aries*, 12 *gr.* 15 *m.* 30 *ſec.* the time from noon 16 *hor.* 23 *m.* 42 *ſec.* The Suns Right Aſcenſion is 11 *gr.* 6 *m.* The time converted is 245 *gr.* 55 *m.* 45 *ſec.* theſe added, make 257 *gr.* 11 *m.* 45 *ſec.* for the Right Aſcenſion of Mid-heaven, whereto anſwers in the Table *Sagittarius* 18 *gr.* 16 *m. viz.* the Mid-heaven it ſelf.

Precept 14.

But if you ſeek the Aſcendant point, you may indeed eaſily finde its Oblique Aſcenſion onely by adding 90 *gr.* to the Right Aſcenſion of Mid-heaven, but from thence to ſeek the Aſcendant will be difficult, unleſſe the Tables of Oblique Aſcenſions be firſt made. Therefore I adviſe that either this be firſt done by the *10 Precept*, or that the Tables of *Regiomontanus*, *Metius*, or others may ſupply this defect.

Precept 15.

The Altitude of Mid-heaven may be thus had: Adde its Declination found by *Precept 7* to the Altitude of the

the Æquator in the Northern ſignes, ſubtract it in the Southern, and you have what you ſeek. Suppoſe *Aries* 12 *gr.* 15 *m.* 30 *ſec.* in the Mid-heaven: its Declination is 4 *gr.* 51 *m.* 41 *ſec.* North; the Altitude of the Æquator at *London* is 38 *gr.* 28 *m.* Theſe added, do make the Altitude of Mid-heaven 43 *gr.* 19 *m.* 41 *ſec.*

Precept 16.

The Semidiurnall arch alſo by the Aſcenſionall difference is thus found. In the Northern ſignes adde the Aſcenſionall difference to 90 *gr.* in the Southern ſignes ſubtract it; the reſult is the arch ſought, which, if converted into time, gives the Semidiurnall time. So in *Aries* 12 *gr.* 15 *m.* 30 *ſec.* the Aſcenſional difference is 6 *gr.* 8 *m.* adde to it 90 *gr.* it gives 96 *gr.* 8 *m.* for the ſemidiurnall arch, and this converted into time, gives 6 *hor.* 24 *m.* 32 *ſec.* for the ſemidiurnall time, or halfe length of the day.

Chap. 3
Of Aſtronomicall Chronology.

HItherto of the Doctrine of the Sphere neceſſary in theſe Tables; what things are yet wanting, the following precepts where we ſhall handle the Parallaxes of the Luminaries ſhall ſupply. We muſt now treat of Aſtronomicall Chronology, which I would have ſo taken, as it may ſhew the heads of Epochaes uſuall in Aſtronomicall Tables, and reduce the years of Forreigners to our Julian years, and the contrary. For this purpoſe we have given ſome Tables in that eaſie forme, that they need not a laborious practice. For firſt is premiſed a view of the more notable Epochaes, which ſhewes what day of the Julian year every Epocha takes his beginning, then the converſion of years both Julian and Egyptian, Perſian, Arabick, or Turkiſh years into dayes, which we propoſe as the common meaſure of all years, and likewiſe have we ſet down the anticipation of the Gregorian year. He that deſires

desires a fuller knowledge of these things, let him have recourse to *Alstedius* his *Encyclopædia*, *Keplers Rudolphine* Tables, and other Authors; we will passe on to examples.

Example.

I desire to know at what time in the Turkish accompt the 5 of *June*, 1649, falls. The work is this.

The compleat years are 1648, which are thus turned into dayes.

Those figures in the	1000	365250
Table of Julian yeers	600	219150
behinde the lines are	40	14610
decimals of dayes, &	8	2922
the surplus to be o-	*May compl.*	151
mitted.	*Dayes*	5
	The summe	602088

From

From this ſumme ſubtract the 15 of *July Anno Chriſti* 622, which converted into dayes, makes 227016

There reſts	375072
900 *Turkiſh years give*	318930
There reſts	56142
150 *Turkiſh years give*	53155
There reſts	2987
8 *Turkiſh years give*	2835
There reſts	152
Giumadi I. *gives*	148
There reſts	4

Therefore the 5 of *June* 1649 in our Engliſh accompt falls in the Turkiſh accompt in the year of *Mahomet*, or their *Hegira* 1058, the fourth day of their *Giumadi II.*

Precept 18.

Example 2. I deſire to know upon what day of our Julian year the 17 day of the moneth *Tyrma* in the 1069 year compleat of the Perſian accompt from *Jeſdagird* fals.

The

The beginning of this Epocha is from the Epocha of Christ in compleat dayes 230639

1000 *Persian years give*	365000
60 *years give*	21900
9 *years give*	3285
Chortat *compleat*	90
dayes compleat	16
The Summe	620930
1000 *Julian years*	365250
There rests	255680
600 *Julian years*	229150
There rests	26530
60 *Julian years*	22915
There rests	3615
9 *Julian years*	3287
There rests	328
October *compleat*	304
There rests	24

Therefore it fell out in the Julian year from Christ 1670 the 24 day of *November*.

He that understands this may by the like method convert also the years of other Epochaes into our Julian years, and the contrary.

Precept 19.

The anticipation of the Gregorian Calender is more easily obtained, for enter with the years of Christ compleat into the Table, and you have the dayes to be added to the time in the Julian accompt, to make it answer to the Gregorian

Chap. 4
Of the Ecclesiasticall Accompt.

THose things premised, which concern computation in the years of divers Nations: We will now treat of the vulgar notes of the Julian years, and shew how by them the Feasts which are called moveable may be found. The Vulgar Notes are five; the Cycle of the Sun, the Cycle of the Moon, called also the Golden number; the Roman Indiction, the Dominicall Letter, and the Epact. The three first are made by a continuall increase by one. The other two by reason of the different form of the Gregorian year from

from the Julian do ſometimes change their ſeats and order.

Precept 20.

The Suns Cycle is a courſe of 28 years; which finiſhed, the feaſts which have fixed ſeats in the Calender happen on the ſame week-dayes. It is thus found: To the year of Chriſt current adde the number 9, divide the ſum by 28, and that which remains after Diviſion is the Cycle of the Sun in that year. *Example.* To the year of Chriſt 1650 I adde 9, the ſum 1659 I divide by 28, the Quotient 59 ſheweth the compleat Revolutions of this Cycle, and the remainer 7 is the Cycle of the Sun for the year of Chriſt 1650.

Precept 21.

The Cycle of the Moon, or the golden number, is a Revolution of 19 years, which ended, the Aſpects of the Moon to the Sun are reſtored very neer to the ſame points of the Zodiack. Its finding out is thus: To the years from Chriſt adde one, and dividing the ſum by 19, the remainer is the golden num-

ber for that year, as if you ſeek the golden number for the year 1650, adde one, and the ſum 1651 divide by 19, the Quotient is 86, which ſhewes the compleated periods of this Cycle, and the remainer 17 is the golden number.

Precept 22.

The Roman Indiction is a period of 15 years, ſhewing the year wherein the *Romans* were wont to have tribute paid them; and withall, how many years were paſſed from the paimēt of tribute. This number, although yet it holds its place in the Calender, is now of no uſe, but the Romans being deprived of Dominion, is long ſince grown out of uſe. Yet is it thus found; Adde to the year of Chriſt 3, the ſum divide by 15, the remainer is the Indiction for that year. As in the yeare 1650, if you adde 3, it makes 1653; this divided by 15, the Quotient 110 doth ſhew the compleat Revolutions of this period, and the remainer 3 is the Indiction for that year.

The

The other two we ſearch not by Calculation, but Tables, and this two wayes, *viz.* that we may ſatisfie both the Calenders, as well Julian as Gregorian, which as they do not altogether partake of one forme of year; ſo do they neceſſarily varie in their Indices of week-dayes, and feaſts. The Tables ſhew how in both the Calenders the Dominicall letters anſwer to the Cycle of the Sun, and the Epacts to the golden number in the old Calender perpetually, but in the new one to the year 1700 *excluſive*, and in the new Calender to the year 1900 *excluſive*. Nor will it be difficult, by the help of the Table of anticipation to extend theſe Tables further, if the way how the Calender was corrected be fully known.

Precept 23.

The Dominicall Letter is one of the ſeven firſt Letters of the Alphabet, A, B, C, D, E, E, G, which ſheweth what day of the *JULIAN* Yeare every Sunday

happens. It is found in its Table with the Cycle of the Sun, and this perpetually in the old year, but in the Gregorian year, according to the current year of Christ, and against the Cycle of the Sun answers the Dominicall letter. As in the example of the year of Christ 1650, because the Cycle of the Sun is 7, the Dominicall letter shall be in the Julian Calender F, in the Gregorian B.

Precept 24.

The Epact is a number of dayes, whereby the Solar year of 365 dayes exceeds the Lunar year of 354 dayes. Therefore the Epact of the first year is 11, of the second 22, &c. cutting off 30 as oft as it exceeds. It is found with the golden number no otherwise then the Dominicall letter with the Cycle of the Sun. As in the example of the year 1650, because the golden number is 17, the Epact is in the Julian year 7, in the Gregorian 27.

The vulgar notes explained, we come to the feasts, and first, the moveable ones, the chief whereof is the feast of

Easter,

Eaſter, for which purpoſe we have exhibited a Paſchall Table to be uſed, as followeth.

Precept 25.

If in the Julian year you deſire to finde the feaſt of *Eaſter*; with the Dominicall letter and golden number enter the Table, and againſt theſe ſtandeth the day of the Julian year whereon *Eaſter* happens. But if you ſeek this in the Gregorian year; inſtead of the golden number, uſe the Epact of the Gregorian year; and proceed as before. *Example.* In the Julian year the Dominicall letter is F, the golden number 17; therefore *Eaſter April* 14. In the Gregorian year, the Dominicall letter is B, the Epact 27, and therefore *Eaſter* day fals *April* 17.

The feaſt of *Eaſter* thus found, the other moveable feaſts are eaſily evident, as is knowne to almoſt any, though ignorant of this Computation.

Precept 26.

By the ſame entrance may *Advent*

Sunday be also had under its title. In the present example of the year 1650, it happens in the Julian Calender the first of *December*, in the Gregorian the 27 *November*.

Precept 27.

The feasts which are called Fixed are exhibited in a peculiar Table, together with the week-day-letters, for every day of the Julian yeare. By which and the knowledge of the Dominicall letter is easily seen what week-day any feast or day of the moneth happens. As in the year 1650; if it be sought what week-day the second of *February* happens, worke thus: With the Dominical letter of that year which in the old accompt is F, in the new B, enter the Table of Feasts, about the second of *Februarie*, and you shall finde the Sunday next before it in the old accompt to be *January* 27, in the new, *January* 30; whence it will not be hard to determine the second day of *February* to happen that year in the Julian accompt on Saturday; in the Gregorian on Wednesday:

And

And this method will alſo ſerve for the reſt.

Chap. 5.

Of the Reduction of Time.

THe Tables of Celeſtiall Motions are accommodated to a certain Meridian of the Terreſtriall Globe, nor can by reaſon of its roundneſſe agree to any place of the Earth, but ſuch as are under the Meridian, for which the Tables are compoſed: that therefore theſe our *Britiſh Tables* may indifferently ſerve all places of the Earth, we have given a Catalogue of Cities and other famous places, whereby both the altitudes of the Pole are known, as alſo the Difference of the Meridians of any place in the Catalogue from that of *LONDON*, which is the primarie one of theſe Tables. The letter S notes that the diſtance is Weſtward,

ward, A that it is Eaſtward; the figures under the title of *Time*, are hours and minutes, whereby the Sun, or any Star comes ſooner or later to the Meridian of that Place then that of *London*. But note that by reaſon of the uncertainty of *Geographie*, Authors do ſeldome agree in theſe things. We doubtfull upon what foundation to build, have corrected ſome things according to our own opinion, and the comparing of Obſervations. Some things we have ſet down according to the opnion of *Bullialdus*, but in moſt things we have credited *Kepler*: Yet that the Calculator may diſtinguiſh betwixt thoſe things which we have built from divers foundations, we have noted thoſe things with one Star, wherein we follow *Bullialdus*, and with two Stars where we follow our own Correction. But we come to the uſe.

Precept 28

If the time of any Lunar Eclipſe, or other appearance be given at *London* after noon 8 *hor.* 23 *m.* and the time when this happens at *Uraniburge* be inquired;

quired; there is found in the Catalogue for *Uraniburge* 0 *hor.* 50 *m.* A; therefore, if according to the letter A 50 *m.* be added to the time given, it makes 9 *hor.* 13 *m.* for the time at *Uraniburge.* But if the time of another place be to be reduced to the time at *London,* the difference is to be applied with the contrary title.

The reaſons which I have for putting *Uraniburge* onely 50 *m.* from *London* I here omit to deliver; for not onely this but other things which I intend concerning the Suns motion, are to be perfected at greater leaſure.

Chap. 6.

Of the Equation of Time.

That time which is propoſed in theſe Aſtronomicall Tables, is not preciſely equall for two cauſes: The firſt ariſeth from the unequall motion of the Sun in the Zodiack: The latter from the Obliquity of the Zodiack. So you ſhall finde a Table exhibiting theſe inequalities compounded, ſerving at leaſt

leaſt for this age. But how *Time* is to be generally equated will be evident, when we teach to compute the place of the Sun.

Precept 29.

If the apparent time be given, 5 *hor.* 16 *m.* 35 *ſec.* and the Suns place 9 *gr.* 28 *m. Gemini*, there is given in the Table the equation anſwering 4 *m.* 55 *ſec.* with the title S; therefore ſubtract this from the former, and the remainer 5 *hor.* 11 *m.* 40 *ſec.* is the equall time. But the equall time being to be converted into the apparent, the equations muſt be uſed with a contrary title.

Hitherto have we delivered Precepts of the firſt and generall part of the Tables, nor ſee we any need of a longer diſceptation. Onely be intreated not to read theſe things careleſſely, but whenſoever the occaſion requires to remit you to the former part, you be not wanting to your ſelfe, but may without repetition of what is ſaid, and by the onely help of memory, from what is delivered learn the way to what followes.

THE PRECEPTS OF *CALCULATION* By the TABLES:

The Second Part.

In which are handled the Motions of the Wandring and Fixed *STARRES*, and the Eclipses of the *Luminaries.*

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Precept I.

How the mean and true motion of the Sun, and the Excentrick in the other Planets may be had.

THE quality of celeſtiall motions is ſuch, that they cannot be reſtreined to a certain Law of equality, but move ſometimess faſter, ſometimes ſlower. Therefore it was neceſſary in making the Tables of theſe motions to have an equal motion as a rule of the unequall, that from thence both the mean places (as they are called) of the Planets, and the apparent may be ſought. The form of theſe our Tables is this: In the firſt page belonging to every Planet are had the motions in Julian years compleat, the Epocha's or roots of motions being prefixed, which ſhew the places of the Planets at that time, where the Epocha adſcribed hath its beginning, The Tables in the following

lowing pages ſerve for Julian years, moneths, dayes, hours, and parts of hours, as by the titles of the Tables is evident. The years, moneths, and dayes are taken compleat, the hours and ſcruples current. After theſe Tables followes another, which contains the Equations of the Excentrick, anſwering to every degree of a Semicircle. Laſtly, to the Equations are annexed Logarithmes, in every one of the Planets, except the Moon, where theſe Logarithmes are needleſſe. But for what uſe theſe Tables ſerve, ſhall now be declared.

1 Firſt, write out the Epocha next going before the given time; then ſeverally ſet under theſe, the motions belonging to the years, moneths and dayes compleat, and to the hours and ſcruples current, every one under his like (onely remember that in the Biſſextile year, after the end of *February*, the dayes muſt be increaſed by an Unit) then adding them all together, the Sum ſhall be the mean motion for that time.

Example.

Example.

Let the given time be 1651, *May* 13 11 *hor.* 10 *m.* before noon at *London*, and the place of the Sun to be sought. The numbers are thus:

	☉ Longit.				☉ Apog.			
	s	o	′	″	s	o	′	″
The Epocha 1640	9	21	15	13	3	6	13	11
years compl. 10	11	29	34	55			9	28
moneth compl. Apr.	3	28	16	39				19
dayes compl. 12		11	49	40				2
hours 23			56	40				
minutes 10				25				
Sum or mean motion	2	1	53	32	3	6	23	0

2 Subtract the *Apogæum* or *Aphelium* from the mean Longitude; there rests the mean Anomalie. But in the Moon this work is needlesse, in regard the Mean Anomalie is given in the Table.

Example.

	s	o	′	″
The Suns mean Longitude	2	1	53	32
The Apogæum *subtracted*	3	6	23	0
Rests the mean Anomalie	10	25	30	32

3 With the mean Anomalie enter the Table of Eccentrick Æquations, and with the ſigne in the head or foot, and the degree in the ſides, take in the common angle, the Æquation anſwering thereto, uſing the part proportionall, if need be, as you were taught in the firſt part of theſe Precepts. But note this generally, that whenſoever the ſigne is in the head, the degrees are deſending on the left ſide; when in the foot, the degrees are aſcending on the right ſide. Laſtly, according to the title Adde or Subtract this Æquation found, to or from the mean Longitude, ſo have you the true Longitude.

Example.

	ſ	°	′	″
The Suns mean Longitude	2	1	53	32
The Æquation corrected. adde		1	10	2
The Suns true Longitude	2	3	3	34

The Longitude thus found is in the Sun, the true place, and alſo in the Moon at the change and full; but in the other Planets, onely the Eccentrick place.

This

This example were sufficient; but lest any one lesse versed in these things may complain that something were wanting, we will exhibite an example of *Saturn* for the same time.

	Longit. ♄				Aphel. ♄				Node of ♄			
1640	11	7	49	20	8	27	15	57	3	20	48	7
10	4	2	19	44			19	1			4	19
Apr.		4	1	10				37				9
d. 12			24	7				4				1
h. 23			1	56								
m. 10				1								
Sum	3	14	36	8	8	27	35	39	3	20	52	36
	8	27	35	39	*The* Aphelium *subtracted*							
	6	17	0	29	*The mean Anomalie*							
Add.		2	4	20	*The Æquation corrected.*							
	3	16	40	28	*The Eccentrick place of* ♄							

4 But if you desire to proceed further in Calculation, *viz.* to finde the true places of the Planets; at this time you must take out the Logarithm of the Sun, and planet, with their mean Anomalie. As in our Example, the mean Anomalie of the Sun 10 *Sig.* 25 *deg.* 30 *m.* 32 *sec.* gives the Suns Logarithme 500637. The mean

Anomalie of *Saturn* 6 *sig.* 17 *gr.* 0 *m.* 29 *sec.* gives the Logarithme 595509.

Precept II.

How Time is to be generally equated.

IN the first part we have taught the Equation of time by a certain temporary Table; we shall now shew how to do it universally.

Have in readinesse the mean motion of the Sun, and his Equation. Apply to the mean motion the halfe of the Equation, as the title requireth, and you have the Suns place equated, the difference of whose Right Ascension from the mean motion, converted into time, is the Equation of time, to be added to the equall time, if the mean motion exceed; or subtracted, if it be exceeded. But the contrary title must be used, when the apparent time is to be converted into the equall. In our example.

The

		°	′	″
The Suns mean motion		61	53	32
The Equation of the Sun	*Add.*	1	10	2
The half of it			35	1
The Suns place equated		62	28	33
Its Right Aſcenſion		60	23	18
Difference from the mean motion		1	30	14
The Equation of time	*Add.*		6	1

Precept III.

To finde the Obliquity of the Zodiack.

With the difference betwixt the year propoſed, and the year of Chriſt 1434 enter the Table, and againſt it ſhall you finde the Obliquity of the Zodiack.

Example.

Let the year be given 1651
1434

With the difference 217, uſing the part proportionall, is found the Obliquity of the Zodiack 23 *gr.* 31 *m.* 52 *ſec.*

Precept IV.

To finde the true places in Longitude of the five Planets, Saturn, Jupiter, Mars, Venus *and* Mercury.

1 BY the first precept of this second part finde the Eccentrick place of the Planet, his Logarithme, his Node, the true place and Logarithme of the Sun.

2 From the Eccentrick place of the planet, subduct the Node, there rests the Argument of Latitude; wherewith enter the Table of Latitude set after the Eccentrick Æquations of the planets, and take out the Reduction and Curtation. The Reduction adde or subtract according to the title to or from the Eccentrick place; so have you the Eccentrick reduced to the Ecliptick. The Curtation must alwayes be subtracted from the Logarithme of the planet; so have you the Logarithme curtated. In the former example was given

	s	o	′	″
The Suns true place	2	3	3	34
His Logarithme		500637		
Saturns *Eccentrick place*	3	16	40	28
Node subtr.	3	20	52	36
Argument of Latitude	11	25	47	52
The Reduction add.				16
The Eccentrick reduced	3	16	40	44
The Curtation				0
So the Logarithme curtated		595509		

3 Subtract the Suns place from the Eccentrick reduced, or this from it; so that lesse then 6 signes may remaine, this remainer is the anomalie of the Orbe, whose half must be taken and reserved.

Example.

	s	o	′	″
Saturns *Eccentrick reduced*	3	16	40	44
The Suns place subtracted	2	3	3	34
The Anomalie of the Orbe	1	13	37	10
The half of it		21	48	35

4 Subtract the greater Logarithme of the Sun, and the planet curtated from the lesse, (the Radius first mentally, or otherwise added) the remainer will

will be the Tangent of an arch, which must be added to 45 degrees, and to the Tangent complement of the sum, adde the Tangent of half the Anomalie of the Orb before reserved (from the sum subtracting the Radius, which is still in these operations supposed, and need not to be still inculcated) so have yon the Tangent of an arch, which in the Superiours *Saturn*, *Jupiter*, and *Mars* must be added to the said half anomalie of the Orbe, in the Inferiours *Venus* and *Mercury* subtracted from it, the summe or remainer shall be the Elongation from the Sun, and must have the title of Addition, if by the former rule the Suns place was subtracted; or subtraction, if the contrary.

Then according to the title adde or subtract this Elongation, to or from the Suns place, and you have the Planets true place.

Exam-

Example.

♄ *Logarith. curtated*	*Subtr.*				595509
☉ *Logarith.*					500637
	°	′	″		
Remainer tang. of	6	25	15		905128
Adde	45	0	0		
The Summe	51	25	15	*Cot.*	990183
Half anom. of Orbe	21	48	35	*t.*	960224
The arch added	17	42	13	*t.*	950407
	s	°	′	″	
The Elongation	1	9	30	48	*to be added*
The Suns place	2	3	3	34	
♄ *true place*	3	12	34	22.	

PRECEPT V.

To finde the Latitudes of Saturn, Jupiter, Mars, Venus, *and* Mercury.

IN the head of the Table of Latitude in every of theſe Planets is ſet down the Tangent of the greateſt inclination, to this Tangent adde the Sine of the Elongation, the Sine of the Argument of Latitude, and the arithmeticall complement of the Sine of the Anomalie of the Orb; from the ſum ſubtract the double Radius; there reſts the Tangent

gent of the Latitude which is North when the argument of the planets is in the first Semicircle, or lesse then 6 Signes; South, when in the latter or more then 6 Signes: as in the former example.

Tangent of greatest incl.					864009
Elongation	*Sine*	1	9 30 48		980363
Argum. of Latitude	*Sine*	11	25 47 52		892241
Anom. of Orb, ar. cō.	*Sine*	1	13 37 10		16124
Latitude of ♄ South tang.			11 26		752737

Though these examples might suffice, yet that the meaning of the former precepts may be better understood, I have added this example more of the Longitude and Latitude of two planets, *Mars* and *Venus*, who by *Maesthlinus* at *Tubing* in *Swaben* or *Suevia*, were observed upon the second of *October* 1590 about 5 before noon, to be almost in a Centrall Conjunction. The Calculation followes; and first of the Sun.

Epocha

	☉ Longit.				☉ Apog.			
	s	o	′	″	s	o	′	″
Epocha of Christ	9	8	59	13	2	10	18	46
years comp. 1000	0	7	28	47		15	47	55
years comp. 500	0	3	44	23		7	53	57
years comp. 80	0	0	35	54		1	15	50
years comp. 9	11	29	49	15			8	32
September comp.	8	29	4	54				43
comp. day 1			59	8				
hours 16			39	26				
minutes 22				54				
The mean motion	6	21	21	44	3	5	25	43
The Apog. subtr.	3	5	25	43				
The mean anomal.	3	15	56	1				
The Equation sub.		1	58	37				
The true place	6	19	23	7				
The Logarithme	499803							

For

For the place of *Mars*.

	Longit. ♂				Aphel. ♂				Node ♂			
	s	o	′	″	s	o	′	″	s	o	′	″
Epoc.	1	10	42	58	3	23	58	15	0	25	18	21
1000	8	16	36	0		21	53	32		13	23	52
500	10	8	18	0		10	56	46		6	41	56
80	6	13	19	40		1	45	5		1	4	19
9	9	12	37	6			11	50			7	14
Septẽ	4	23	4	16				59				36
d. 1			31	27								
h. 16			20	58								
m. 22				26								
Mean motion	4	25	30	54	4	28	46	27	1	16	36	18

The mean motion of ♂	4	25	30	54
The Aphelium subtracted	4	28	46	27
The mean Anomalie	11	26	44	27
The Equation Add.			32	5
The Eccentrick place	4	26	2	59
The Node subtracted	1	16	36	18
The argument of Latitude	3	9	26	41
The Reduction Add.				17
The Eccentrick reduced	4	26	3	16
The Suns place	6	19	23	7
The Anomalie of the Orb	1	23	19	51

Loga-

Logarithme of ♂		522117			
Curtation		22			
Logar. of ♂ *Curt. ſub.*		522095			
Logarithme of ☉		499803			
			☌	9	′	″
Remainer	*tang.*	977708		30	54	5
		Adde		45	0	0
Summe	*Co-tang.*	939994		75	54	5
Half anom. Orb,	*tang.*	970087		26	39	55
Arch added,	*tang.*	910081		7	11	10
Elongation ſubtr. from ☉ *place*				1	3	51	5
True place of Mars.				5	15	32	2

For the Latitude of *Mars*.

		♋	°	′	″	
Tangent of greateſt incl.						850946
Elongation	*Sine*	1	3	51	5	974589
Argum. of Latit.	*Sine*	3	9	26	41	999407
Anom. of Orb,	*ar. cō. Si.*	1	23	19	51	9577
Latitude North	*tang.*		1	16	6	834519

For

For the place of *Venus*.

	Longit. ♀				*Aphel.* ♀				*Node* ♀			
	s	o	′	″	s	o	′	″	s	o	′	″
Epoc.	1	12	46	45	9	12	50	44	2	0	43	16
1000	6	13	33	30		14	5	14		8	22	44
500	9	6	46	45		7	2	37		4	11	22
80	0	15	29	5			7	37			40	13
9	7	16	20	19			7	36			4	31
Septẽ	2	17	23	37				38				22
d. 1		1	36	8								
h. 16		1	4	6								
m. 22			1	28								
Mean motion	3	25	1	43	10	5	14	26	2	14	2	28

The mean Longitude of ♀	3	25	1	43
The Aphelium subtracted	10	5	14	26
The mean Anomalie	5	19	47	17
The Equation subtr.			9	45
The Eccentrick place	3	24	51	58
The Node subtracted	2	14	2	28
The argument of Latitude	1	10	49	30
The Reduction subtr.			2	57
The Eccentrick reduced	3	24	49	1
The Suns place	6	19	23	7
The Anomalie of the Orb	2	24	34	6
The half Anomalie	1	12	17	3

Loga-

Logarithme of ♀	485632				
Curtation	32				
Logar. of ♀ *Curtated*	485600				
Logarithme of ⊙ *ſub.*	499803				
		s	o	′	″
Remainer tang.	985797		35	47	40
Adde			45	0	0
Summe Co-tang.	920969		80	47	40
Half anom. Orb, tang.	995877		42	17	03
Arch ſubtracted, tang.	916846		8	23	04
Elongation ſubtr. from ⊙ *place*		1	3	53	59
True place of Venus.		5	15	29	8

For the Latitude of *Venus*.

		s	o	′	″	
Tangent of greateſt incl.						877144
Elongation Sine	1	3	53	59	974643	
Argum. of Latit. Sine	1	10	49	30	981541	
Anom. of Orb, ar. cō. Si.	2	24	34	6	195	
Latitude North tang.		1	14	23	833523	

By this Calculation the two Planets differ only in Longitude 2 *m.* 54 *ſec.* in Latitude 1 *m.* 43 *ſec.* which is ſo little, as hardly to be diſtinguiſhed by the bare eye, by reaſon of the light of the Stars, which diffuſeth it ſelfe about, and makes them appear bigger, and their

their distances lesse then indeed they are, and which is one reason why Observations thus made cannot be so precisely true, as that we can thereby infallibly deliver the motions of the planets; that work, for all our endeavours, being still reserved for new wayes of observation, which in what progresse they are may perhaps ere long be manifest.

Precept VI.

To discover the Directions, Stations, and Retrogradations of the five Planets.

THe Precepts of most others, as *Rheinholdus, Argol, Lansberg, &c.* do remit us to Tables, whereby to finde the first and second stations of the five planets; but these being composed for one onely positure of the planets cannot be perpetually true. The most generall way is to calculate their places two or three dayes together; for if the Longitude increase, the

the Planet is Direct; if it decreaſe, Retrograde; and if it continue the ſame, ſtationary. The writers of *Ephemerides* may finde other compendious wayes out to diſcover the times of the ſtations; to deliver all which would be needleſſe, and perhaps impoſſible; nor is it our purpoſe to afford the Calculator all requiſites; but to leave ſomething untoucht, wherein he may exerciſe his own *Genius*.

Precept VII.

To finde the place of the Moon in Longitude.

1 Gather the mean motions of the Moons Longitude, her Anomalie, and argument of Latitude, as in the other Planets, and by the Anomalie finde the Equation of the Eccentrick; by which, as in the reſt, finde her Eccentrick place.

2 The Equation of the Eccentrick, according to the title, apply both to the mean anomalie, as alſo to the mo-

tion or argument of Latitude; so have you the co-equated anomalie, and the motion of Latitude first equated. *Example* of the same time, for which we calculated the motion of *Saturn*, *viz.* 1651, *May* 13, 11 *hor.* 10 *m.* before noon,

	☽ Longit.				☽ Anom.				☽ Latitude			
	s	o	′	″	s	o	′	″	s	o	′	″
Epocha 1640	9	17	48	57	7	20	58	19	1	29	59	54
y. compl. 10	8	0	11	34	6	13	19	3	2	13	35	12
compl. Apr.	4	21	10	2	4	7	47	53	4	27	31	9
dayes 12	5	8	7	0	5	6	46	47	5	8	45	8
hours 23		12	37	38		12	31	14		12	40	42
minutes 10			5	29			5	27			5	31
Mean motion	4	0	0	40	0	1	28	43	3	2	37	46
Equation sab.			7	25			7	25			7	25
Remains	3	29	53	15	0	1	21	18	3	2	30	21

	s	o	′	″
So is the ☽ eccentrick place	3	29	53	15
The co-equated Anomalie	0	1	21	18
Motion of Latit. first equated	3	2	30	21

3 From the Moons Eccentrick place subtract the Suns true place; with the remainer enter the Table of the Moons secondary Equations, finding it in the head or foot, and the co-equated anomalie in the sides, and in

in the common angle, by using the part proportionall, if need be, is found the Moons secondary Equation, which, according to the title next below it, in ascending, or above it in descending, must be applied to the Eccentrick place, so have you the Moons place in her Orb; which by the next precept you may learn to reduce to the Ecliptick.

Example.

	s	o	′	″
The Moons Eccentrick place	3	29	53	15
The Suns true place *subtracted*	2	3	3	34
The distance of ☉ and ☽	1	26	49	41
With this & the coequated anom.	1	21	18	
I finde the ☽ secondary Equation *sub.*		29	15	
So is the ☽ true place in her Orb	3	29	24	0

Precept VIII.

To finde the Moons true Latitude and place in the Ecliptick.

1 TO the motion of Latitude first equated, according to the title apply

ply the Moons ſecondary Equation; ſo have you the motition of Latitude ſecondly equated.

2 To the diſtance of the Sun and Moon before found, apply the ſecondary Equation according to the title; ſo have you the true diſtance of the Sun and Moon. As in the former Example.

	s	o	′	″
Motion of Latit. firſt equated	3	2	30	21
The ☽ ſecondary equation, *ſubtr.*			29	15
Mot. of Latit. ſecondly equat.	3	2	1	6
Diſtance of ☉ and ☾ as before	1	26	49	41
The ☾ ſecondary equation *ſubtr.*			29	15
The true diſtance of ☉ and ☾	1	26	20	26

3 With the true diſtance of Sun and Moon enter the Table of the Equation of the Nodes, and take thence the Equation of the Nodes; which, according to the title, apply to the motion of Latitude ſecondly equated, and you have the true and abſolute motion of Latitude. At the ſame entrance take out alſo the ſcruples of proportion, and reſerve them.

Example.

	s	o	′	″
With the true dist. of ☉ & ☾	1	26	20	26
I find the equat. of the Node *add.*	1	36	47	
Which I add to Lat. 2ly equat.	3	2	1	6
So the true motion of Latit. is	3	3	37	53
The scruples of proportion			41	57

4 With the true motion of Latitude, enter the Table of Latitude, and take thence the Latitude and the Eccesse; then multiply the eccesse by the scruples of proportion before reserved, and the product adde to the Latitude found in the Table, the summe shall be the true Latitude of the Moon, which is North, when the true motion of Latitude is lesse then *6* signes; South, when it is more.

Example.

		s	o	′	″
The true motion of Latitude		3	3	37	53
Gives	The Latitude		4	57	53
	The Eccesse			18	58

The scruples of proportion 41 *m.* 57 *sec.* multiplied by the eccesse 18 *m.* 58 *sec.* gives in the product 13 *m.* 16 *sec.* which added to the Latitude found

4 *gr.* 57 *m.* 53 *sec.* gives the true Latitude North 5 *gr.* 11 *m.* 9 *sec.*

5 If the true motion of Latitude be subtracted from the Moons true place in her Orb, there rests the Node ascendent.

		s	o	′	″
As	The Moons true place	3	29	24	0
	Motion of Latitude *subtr.*	3	3	37	53
	The Node Ascendent	0	25	46	7

6 With the true motion of latitude enter the Table of Reduction, and take out the Reduction, which, according to the title, apply to the Moons place in her Orb, & you have her true place in the Ecliptick.

Example.

The true motion of latitude, 3 *sig.* 3 *gr* 37 *m.* 53 *sec.* gives the Reduction 0 *m.* 52 *sec.* adde which added to the place in the Orbe, 3 *sig.* 29 *gr.* 24 *m.* 0 *sec.* gives the true place of the Moon in the Ecliptick 3 *sig.* 29 *gr.* 24 *m.* 52 *sec.*

Precept IX.

To find the mean Conjunction and Oppoſition of the Sun and Moon.

FOr this purpoſe we have exhibited a Table, the uſe whereof is this Set down firſt the *Epocha* next preceding the year given; then the years and moneths compleat, having a care of the year *Biſſextile*, and to every one ſet down the time anſwering in the Table; then adde them altogether, and the ſum ſubtract from the next greater in the *Canonion*, under the title ☌, if you ſeek a Conjunction; or ☍, if an Oppoſition; the remainer ſheweth the Time required compleat from the beginning of the moneth current.

Example.

I would know at what time the mean Oppoſition of the Sun & Moon happens in the moneth of *March*, in the year 1652. The work is this.

	D	H	′	″
The Epocha 1640	29	15	57	59
Years compleat 11		20	8	50
February compleat Biſſext.		22	31	53
The ſum ſubtr.	31	0	38	42
The & next greater	44	7	6	5
The mean Oppoſition	13	6	27	23

which is in time compleat from the beginning of *March.*

Precept X.

To finde the true Conjunction or Oppoſition of the Sun and Moon.

1 FOr the time of the mean Conjunction or Oppoſition given, finde the true place of the Sun, and the Eccentrick place of the Moon, and compare them; if they either be preciſely the ſame, or preciſely oppoſite, the time of the true Conjunction or Oppoſition agrees with the mean; but if they differ, take the difference by ſubtracting the leſſe from the greater, and that call the diſtance of the Sun and Moon.

2 Out of the Table of Semidiameters

ters & hourly motions, with the mean anomalies of the Sun and Moon, take out their hourly motions, and ſubtract the hourly motion of the Sun from the hourly motion of the Moon; by the remainer (which is the hourly motion of the Moon from Sun) divide the diſtance of the Sun and Moon before kept, the Quotient gives the time which muſt be added to the mean time of Conjunction or Oppoſition, if the exceſſe in the Suns place; or ſubtracted from it, if in the Moons place.

3 At this time thus corrected, finde again the true place of the Sun and Eccentrick place of the Moon, together with their diſtance, and repeat your former work, till you finde them abſolutely to concurre, and the time thus found ſhall be the true time of Conjunction or Oppoſition. As in the example.

At

	D	H	′	″
At the time of the mean ☌ Mar.	13	6	27	23
The true place of ☉ is	♑ 0	4°	51	16
The Eccentrick place of the ☽	6	0	24	33
The distance of ☉ from ☌ ☽			4 25	43
Mean Anomalie of ☉	8	26	25	0
His hourly motion			2	29
Mean Anomalie of ☽	1	0	16	0
Her hourly motion			30	9
Hourly motion of ☽ from ☉			27	40
which dividing the distance			4 25	43
gives in the Quotiene 8^h 36′ ferè to be added				
So the time first corrected	13	15	3	23
The true place of the Sun	0	5	12	29
The eccent. ick place of the ☽	6	4	48	34
The distance of ☉ from ☌ ☽			23	45
Which divided by hor. mot. ☽ frõ ☉			27	47
gives in time add.			51	17
So the time secondly corrected	13	15	54	40
The true place of the ☉	0	5	14	36
The eccentrick place of ☽	6	5	13	57
The distance of ☉ from ☌ ☽			0	39
Which divided by hor. mot. ☽ frõ ☉			27	47
gives in time add.			1	24
So the true time of ☌ March	13	15	56	4
The true place of the Sun	0	5	14	39
The eccentrick place of the ☽	6	5	14	39

4 For this time finde out the true motion of the Moons Latitude, and thereby the Reduction, which divide by

by the hourly motion of the Moon from the Sun, and the Quotient, contrary to the title of the Reduction, apply to the last corrected time; so have you the true time. In our Example.

		s	o	′	″
The true motion of latitude		5	24	2	9
The Reduction	*add.*			1	26
The Quotient	*subtr.*			3	5
So the true Opposition		13d	15h	52	59

5 Lastly, apply the equation of time to this equall time to make it apparent.

		d	h	′	″
The true time of the ☌		13	15	52	59
The equation of time	*subtr.*			2	21
The apparent time of the ☌		13	15	50	38

Precept XI.

To predict whether any Eclipse or no will happen.

THere are two wayes to know this; of which, the one is more easie, the other is more certain. The first is this.

At

At the true Conjunction, if the true motion of Latitude be within 17 degrees backward or forward of 6 or 12 ſignes, or at the Oppoſition within 12 degrees, there is a poſſibility of an Eclipſe; otherwiſe not.

In our example, the Moons true motion of Latitude is 5 *ſig.* 24 *gr.* 2 *m.* 9 *ſec.* which being not fully 6 degrees diſtant from 6 ſignes, ſhewes the neceſſity of an Eclipſe.

The other way is this. If at the viſible Conjunction, the viſible Latitude of the Moon be leſſe then the aggregate of the Semidiameters of the Sun and Moon, there muſt be an Eclipſe; otherwiſe not. 2 If at the true Oppoſition, the true Latitude of the Moon be leſſe then the ſum of the Semidiameters of the Moon and the earths ſhadow, there muſt be an Eclipſe, otherwiſe not. This later way is moſt certain, onely ſubject to this inconvenience, that a great part of the Calculation is performed, before we come to the ἀπόρθητον, or power to judge of the poſſibility.

Precept XII.

To finde the Quantitie of a Lunar Eclipse.

1 BY the true motion of the Moons Latitude, finde her true Latitude acording to the former directions: this in our example is 0 *gr.* 30 *m.* 56 *sec.* South Descendant.

2 Finde out the Semidiameter of the Moon by her mean anomalie out of the Table, as also her Horizontall parallax; and with the mean anomalie of the Sun take out the Semiangle of the Cone of the shadow; and this subtract from the Moons Horizontall parallax, there rests the Semidiameter of the shadow.

3 Adde together the Semidiameter of the shadow, and the Semidiameter of the Moon, and from the sum subtract the Latitude of the Moon, the remainer is the scruples of the Moons diameter eclipsed.

Example.

Example.

		°	′	″
Horizontall parallax of the Moon		0	56	9
Semiangle of the Cone	*subtr.*		15	7
Semidiameter of the shadow		0	41	2
Semidiameter of the Moon	*add.*		15	42
Sum of the Semidiameters			56	44
Latitude of the Moon	*subtracted*		30	56
Scruples deficient			25	48

4 Convert these scruples into digits or parts, whereof the Moons body conteines 12, thus: From the Logisticall Logarithme of the scruples deficient, subtract the Logisticall Logarihtme of the double of the Moons Diameter, there rests the Logisticall Logarithme of the digits eclipsed.

Example.

	°	′	″	*Log.*
Scruples deficient	0	25	48	963347
Double of ☽ Diameter	1	2	48	1001982
Digits eclipsed	9	51	35	961365

These digits are found against the Logarithme in the Column of time.

Yet note that Lunar Eclipses are of three sorts. 1 Partiall, when the scruples

ples deficient are leſſe then the Diameter. 2 Totall, without continuance, when they are equall. 3 Totall, with continuance, when the ſcruples deficient are greater then the Diameter, and in theſe the Digits eclipſed are more then 12, which are ſo to be underſtood, as that they ſhew how far the Eclipſe is over the body of the Moon.

Precept XIII.

To finde the duration of a Lunar Eclipſe, or the continuance of totall darkneſſe, where the Eclipſe is totall.

1 FInde the ſcruples of Incidence thus: from the logiſticall logarithme of the Moons latititude ſubtract the logiſticall logarithme of the ſum of the Semidiameters of the Moon and the ſhadow; the remainer ſeek in the Table of Sines, and to its Co-ſine adde the Logarithme of the ſum of the Semidiameters, the Sum ſhall be the Logiſticall Logarithme of the ſcruples of Incidence.

Example.

Example.

	°	′	Log.
The Moons Latitude	30	56	971227
Sum of Semidiameters	56	44	997568
The Sine found			973659
Its Co-sine			992338
Sum of Semidiameters	56	44	997568
Scruples of Incidence	47	33	989906

2 Divide the Scruples of Incidence by the hourly motion of the Moon from the Sun, the Quotient gives the time of Incidence or half duration of the Eclipse. This subtracted from the true time of the Opposition, gives the beginning of the Eclipse, or added to it, gives the ending. *Example.* The scruples of Incidence 47 *m.* 33 *sec.* divided by the hourly motion of Moon from Sun 27 *m.* 47 *sec.* gives the time of Incidence 1 *hor.* 43 *m.* 24 *sec.* And seeing the true Opposition fals out 15 *hor.* 50 *m.* 38 *sec.* the beginning is 14 *hor.* 7 *m.* 14 *sec.* the end 17 *hor.* 34 *m.* 2 *sec.* The whole duration 3 *hor.* 26 *m.* 48 *sec.*

3 If the Eclipſe be totall, and you deſire to know the continuance of totall darkneſſe; take the difference of the Semidiameters inſtead of the ſum, and thereby work as you are taught in this Precept, and you ſhall not fail of your deſire,

4 If to the ſum of the Semidiameters you adde the Diameter of the Sun, and then work as before, you ſhall find how long before or after the true Oppoſition that paleneſſe (called the Vibration) takes its beginning or ending. But this enquiry is perhaps too curious.

Precept XIV.

To finde the Moons Latitude at the beginning and end of the Eclipſe.

WE have no need of this for diſcovering either the time, quantity, or duration of the Eclipſe; onely it is made uſe of for the drawing of the Picture, and repreſentation of the Eclipſe *in Plano*, as we ſhall ſhew hereafter: it is thus found.

1 By the time of Incidence multiply the Suns hourly motion, and the ſum adde to the ſcruples of Incidence, ſo have you the motion of the Moon agreeing to the time of Incidence.

2 Subtract this motion of the Moon from the true motion of Latitude at the true Oppoſition; there reſts the true motion of Latitude at the beginning of the Eclipſe; or adde it, and you have the motion of Latitude at the ending; with which out of the Table of Latitude you may finde out the Latitude anſwering to the beginning and end, as in our *Example*.

	H	′	″
The time of Incidence	1	43	24
The Suns hourly motion		2	30
Their product		3	18
The Scruples of Incidence		47	33
The Sum		50	51

	S	o	′	″
Motion of Latitude at true ☌	5	24	2	9
Motion of Latit. at beginning	5	23	11	18
Latitude at beginning *North Deſc.*			35	21
Motion of Latitude at ending	5	24	53	0
Latitude at ending, *North Deſc.*			26	34

PRECEPT

Precept XV.

To finde the middle of the Eclipſe, or greateſt darkneſſe.

THe queſtion is yet unreſolved, which time ought to be called the true Conjunction or Oppoſition, whether when the Sun and Moon are in one line perpendicular to the Ecliptick, or perpendicular to the Orb of the Moon, or when they are equally diſtant from the Nodes? The firſt of theſe, as the moſt received, we follow, however it is not that which is the time of the greateſt darkneſſe, but to finde this time with the Moons true latitude at the true Oppoſition, enter the little Table of the difference of the true Conjunction or Oppoſition from the greateſt obſcuration, and you ſhall finde the difference with the title, which divide by the hourly motion of the Moon from the Sun, and the Quotient, according to the title, apply to the time of the true oppoſition; ſo have you the time of greateſt darkneſſe, or middle obſcuration.

Example.

			′	″
The Moons Latitude	*Sept. Desc.*		30	56
The difference added			2	42
which divided by			27	47
gives the difference in time	*add.*		5	50
The true Opposition *March*	13^{d}	15^{h}	50	38
So the middle of the Eclipse	13	15	56	28

Notwithstanding it were more requisite and neerer the truth to use a method something differing from this; this being in effect no other then what other Authors, as *Rheinholdus*, *Longomontanus*, *Eichstadius*, *Argol*, *Lansberg*, and the Authors of *Urania Practica* have used; which though not far differing from the truth, yet short of preciseness; the better way is to adde the difference found in the Table, or subtract it, according to the title, to or from the motion of Latitude, & therewith to take out of the Table of Latitude, the Latitude, which may be called in this case the arch between the two Centers, and by that and the sum of the Semidiameters (as formerly taught) gather the Digits eclipsed, and the time of incidence, as also the Latitude

tude of the Moon at the beginning and ending. But this differing not much from the former, we ſhall here forbear to exemplifie, and preſent to the Reader at one view the former Calculation of this Lunar Eclipſe.

The Calculation of the fore-mentioned Eclipſe, according to the preceding directions.

		D	H	′	″
Mean Oppoſition	March	13	6	27	23
Interval	*add.*		9	28	41
True Oppoſition		13	15	56	4
True place of the ☉		0	5	14	39
Eccentrick plac of the Moon		6	5	14	39
Mean Anomalie of the ☉		8	26	48	22
Mean Anomalie of the Moon		1	5	25	35
True motion of Latitude		5	24	2	9
True Latitude	Sept. Deſc.			30	56
Reduction	*add.*			1	26
Hourly motion of the Sun				2	30
Hourly motion of the Moon				30	17
Hourly motion of ☽ *from* ☉				27	47
Reduction in time	*ſubtr:*			3	5
True Oppoſition corected		13	15	52	59
Equation of time	*ſubtr.*			2	21
Trueſt Oppoſition		13	15	50	38
Horizontall Parallax of ☽				56	9
Semiangle of the Cone				15	7

	D	H	′	″
Semidiameter of the ſhadow			41	2
Semidiameter of the Moon			15	42
Sum of the Semidiameters			56	44
Scruples deficient			25	48
Digits eclipſed			9 51	35
Scruples of Incidence			47	33
Time of Incidence		1	43	24
Beginning of the Eclipſe	13	14	7	14
End of the Eclipſe	13	17	34	2
The whole duration		3	26	48
Latitude of ☽ at the beginning	Sept. D.		35	21
Latitude of ☽ at the end	Sept. D.		26	34
Difference from the middle of the Eclipſe to be added			5	50
The middle Eclipſe	13	15	56	28

Precept XVI.

Of the Calculation of the Suns Eclipſe.

THis Eclipſe is not properly the Eclipſe of the Sun, but of the Earth, in regard it is not the Sun, but the earth which loſeth light, the Sun being onely apparently dark; notwithſtanding we will uſe the name others have given it, and ſhew how it is to be calculated.

Finde

Finde the mean Conjunction, and from thence the true, which correct by the Reduction & Equation of time in all things, as in the Moon. *Example* of a Solar Eclipse happening *March* 28 1652.

		D	H	′	″
Mean Conjunction	March 28		0	49	24
Interval	*subtr.*		2	51	8
True Conjunction		27	21	58	16
☉ *place and* ☽ *in her Orb*		0	19	15	13
Mean Anomalie of the Sun		9	10	51	13
Mean Anomalie of the Moon		7	11	37	20
True motion of Latitude		0	8	51	54
True Latitude	Sept. Asc.			45	56
Reduction	*add.*			2	7
Hourly motion of the Sun				2	27
Hourly motion of the Moon				36	43
Hourly motion of ☽ *from* ☉				34	16
Reduction in time	*subtr.*			3	41
True Conjunction corrected		27	21	54	35
Equation of time	*add*			2	0
Truest Conjunction		27	21	56	35

Precept XVII.

To finde the Parallaxes of Longitude and Latitude.

1 BY the rules delivered in the former part at the true Conjunction finde out the Mid-heaven, its altitude, and the meridan angle.

Example.

		′	″
The Suns place	♈	19	15
His right Ascension		17	44
Time in degrees		329	9
Right Ascension of Mid-heaven		346	53
Mid-heaven	♓	15	46
Meridian angle		67	7
Declination of Mid-heaven	South	5	35
Altit. of the Equator at London		38	28
Altitude of Mid-heaven		32	53

2 Adde together the Sine of the Meridian angle, and the Co-sine of the Altitude of Mid-heaven, the sum is the Co-sine of the angle of the Ecliptick and Horizon.

Example

Example.

		°	′	
Meridian angle	*S*	67	7	996440
Altitude of midheaven	*CS*	32	53	992416
Angle of Eclipt. & Hor.	*CS*	39	19	988856

3 Adde together the Sine of the Meridian angle and the Co-tangent of the Altitude of Mid-heaven, the ſum is the Tangent of the diſtance of Mid-heaven from the Nonageſime degree of the Ecliptick above the Horizon from the Aſcendent. This adde to the Midheaven, from *Capricorn* to *Cancer*, ſubtract from *Capricorn* to *Cancer*, and you have the Nonageſime degree.

Example.

Meridian angle	*CS*	67	7	958979
Altitude of Midheaven	*CT*	32	53	018942
diſt. of Midh. frō Nonag.	*ad T*	31	2	977921

This diſtance, according to the title, adde to the Midheaven, *Piſces* 15 *gr.* 46 *m.* and it falls in *Aries* 16 *gr.* 48 *m.* which is the Nonageſime degree.

4 Finde the Node aſcendent, and ſubtract it from the Nonageſime degree; with the remainer enter the Table

ble of the Moons Latitude, and take out the Latitude, which, if North, adde to the angle of the Ecliptick and Horizon; if South, ſubtract it from it; ſo have you the altitude of the Nonageſime degree of the Moons Orb.

Example. The Node is found 0 *ſig.* 10 *gr.* 23 *m.* which ſubtracted from the Nonageſime degree 16 *gr.* 48 *m.* there reſts 6 *gr.* 25 *m.* which gives in the Table of the Moons Latitude 0 *gr.* 32 *m. addend.* This added to the angle of the Ecliptick & Horizon 39 *gr.* 19 *m.* gives the altitude of the Nonageſime degree of the Moons Orb 39 *gr.* 51 *m.*

5 Take the diſtance of the Sun from the Nonageſime degree, which in our example of the true Conjunction is 2 *gr.* 27 *m.*

6 Out of the Table of Horizontall Parallaxes, take the Horizontall Parallaxes of the Sun and Moon, as before taught, the difference of them is the Horizontall Parallax of the Moon from Sun; as in our example, the Horizontall parallax of the Sun is 2 *m.* 21 *ſec.* of the Moon 60 *m.* 7 *ſec.* the difference is 57 *m.* 46 *ſec.* 7 Adde

7 Adde together the Logiſticall Logarithme of the Horizontall parallax of the Moon from Sun, the ſine of the Altitude of the Moons Orbe, and the ſine of the diſtance of the Sun from the Nonageſime degree; the ſum (ſubtracting the double Radius) is the Logiſticall Logarithme of the parallax of Longitudes.

Example.

Horiz. Paral. of ☽ from ☉	57′	46″	998353
Altit. of Nonag. in ☽ Orb S	39°	51′	980671
Diſt. of ☉ from Nonag. S	2	27	860033
Parallax of Longitude	1′	29″	839057

Here note that whenſoever the Suns place is leſs then the Nonageſime, the Parallax of Longit. makes the Luminaries appear more Weſt then the truth; and in the Occidentall Quadrant, when more, then in the Orientall.

8 Adde the Logiſticall Logarithme of the Horizontall Parallax of the Moon from Sun, to the Co-ſine of the altitude of the Nonageſime in the Moons Orb; the ſum is the Logiſticall Logarithme of the parallax of the Latitude.

Exam-

Example.

Horizontal Paral. of ☽ frō ☉	57	46′	998353
Altit. of Nonag. in ☽ Orb *CS*	39	51	988521
Parallax of Latitude	44	21	986874

This is the method which I moſt approve of, which I would wiſh him that will be perfect in the Calculation of Solar Eclipſes to obſerve fully, in regard it is of much uſe. Other wayes are taught by others, moſt whereof require the knowledge of the parallaxes of altitude. For their purpoſe that are affected to thoſe wayes, I have delivered Tables of thoſe Parallaxes. For the precepts thereto belonging I will not now ſtand to burden the book with them, but rather chuſe to remit the Reader to the late Publiſhed *Urania Practica*, where they are delivered. Yet will theſe be found more eaſie and expedite then the other, if mine own liking lead me not to partiality.

PRE-

Precept XVIII.

To finde the visible motion of the Moon from the Sun for any time assigned.

AT the beginning and also at the end of the time proposed finde the parallax of the Moon from the Sun in Logitude, and then observe these rules.

1 If during all the time proposed, the Luminaries be in the Oriental quadrant, and the Parallax of Longitude increase, or be greater at the end of the time given then at the beginning, adde the difference of the two parallaxes of Longitude, unto the true motion of the Moon from the Sun agreeing to the time given, or if it decrease, subtract it, and you have what you desire.

2 If during all the time the Luminaries be in the Occidentall Quadrant, and the parallax of Longitude increase, subtract the said difference from the true motion; if it decrease, adde it, and you have the visible motion.

3 If at the beginining of the time the Luminaries be in the Orientall quadrant

drant, and at the ending in the Occidentall, ſubtract the ſaid difference from the true motion, and you have the viſible motion, during that time.

Example.

Let it be propoſed to finde the viſible motion of the Moon from the Sun for one half hour before the true Conjunction, in our example. The true half hourly motion is 17 *m.* 8 *ſec.* The Parallax of Longitude at the beginning is 5 *m.* 1 *ſec.* at the end 1 *m.* 29 *ſec.* the difference is 3 *m.* 32 *ſec.* which according to the firſt rule of this precept (becauſe the Luminaries are in the Orientall Quadrant) ſubtracted from 17 *m.* 8 *ſec.* leaves 13 *m.* 36 *ſec.* the viſible half hourly motion before the true Conjunction.

Precept XIX.

To finde the time of the viſible Conjunction of the Sun and Moon.

1 USe this Analogie. As the apparent motion in any time aſſigned (found by the former precept) is to the time aſſigned; ſo is the parallax of Lon-

Longitude at the true Conjunction, to the difference in time between the true and visible Conjunction. This difference in the Orientall Quadrant must be subtracted from the time of the true Conjunction, in the Occidentall Quadrant added thereto; so have you the visible Conjunction. *Example.* As the visible half hourly motion of Moon from Sun 13 36 is to the time assigned 30 *m.* so is the parallax of Longit. 1 *m.* 29 *sec.* to the difference betwixt the true and visible Conjunction 3 *m.* 37 *sec. subtr.* So is the visible Conjunction *March* 27, 21 *hor.* 53 *m.* 18 *sec.*

2 At this time finde out the true distance of the Moon from Sun, as also the parallax of Longitude, which, if they agree, it is a signe the visible ☌ is trulie found; otherwise, repeat the former work, till there be a concurrence. *Example.* At the visible ☌ *March* 27, 21 *hor.* 53 *m.* 18 *sec.* the true distance of the Moon from the Sun is 1 *m.* 53 *sec.* the parallax of Longitude, 1 *m.* 58 *sec.* differing onely 5 *sec.* which in time make not up a quarter of a minute. Therefore the visible ☌ is precisely enough found.

Precept XX.

To finde the visible Latitude of the Moon at the time of the visible Conjunction.

IN these Northerne Regions which we inhabit, the Parallax of Latitude alwayes makes the Moon appear to be more South then indeed she is. Wherefore to finde out the visible Latitude, observe these rules.

1 At the time of the visible Conjunction finde out the true Latitude of the Moon thus. If the Eclipse happen in the Orientall Quadrant; adde the parallax of Longitude to the motion of the Sun, agreeing to the difference betwixt the true and visible Conjunction, and the sum subtract from the true motion of Latitude at the time of the true Conjunction, or if the Eclipse happen in the Occidentall Quadrant, adde the said sum thereto, and you have the true motion of Latitude at the visible Conjunction, by which, as formerly taught, finde out the true Latitude of the Moon.

Example.

Example.

	☉	°	′	″
Motion of ☉ agreeing to 3′ 37″			0	9
Parallax of Longitude at visible ☌			1	58
The summe *subtr.*			2	7
Motion of Latitude at true ☌	0	8	51	54
Motion of Latitude at visible ☌	0	8	49	47
True Latitude at visible ☌	*North*		45	47

2 At the same time finde the parallax of Latitude; and compare it with the true Latitude. If the Latitude be South, adde them together, the sum is the South visible latitude of the Moon: but if North, subtract the less from the greater; there remains the visible latitude of the Moon, which shall be North, when the latitude is greater then the parallax; otherwise South.

Example.

	′	″
The true Latit. of the Moon *North*	45	47
The Parallax of Latitude	44	38
The visible Latitude *North*	1	9

Precept XXI.

To finde the Quantity of a Solar Eclipse.

THis precept differs very little from the tenth precept for finding the quantity of a Lunar Eclipse: For if with their mean Anomalies you enter the Table, and thence take out the Semidiameters of the Sun and Moon, and adde them together; and from the sum subduct the visible Latitude of the Moon at the visible Conjunction, there rests the scruples of the Suns body deficient, which as in the Moon, so here in the Sun convert into digits.

Example.

		′	″
Semidiameter of the Sun		16	22
Semidiameter of the Moon		16	47
Sum of the Semidiameters		33	9
Visible Latitude subtracted		1	9
Scruples deficient		32	0
So the Digits eclipsed	D 11	43	51

Pre-

Precept XXII.

To finde the beginning and ending of the Suns Eclipse.

1 BY the visible Latitude of the Moon, and the Sum of the Semidiameters of the Sun and Moon, finde the scruples of Incidence; as in the Moons Eclipse, *Precept 11.*

2 For one hour before the visible Conjunction, finde by *Precept 16*, the visible hourly motion of the Moon from the Sun, by which divide the scruples of Incidence, the Quotient is the time of Incidence, which subtracted from the time of the visible Conjunction, leaves the beginning of the Eclipse.

3 For one hour after the visible Conjunction finde the visible hourly motion of the Moon from the Sun, by which divide the scruples of Incidence the Quotient is the time of repletion, which added to the time of the visible Conjunction, gives the end of the Eclipse.

Example.

	D	H	′	″
Sum of the Semidiameters			33	9
Visible Latitude			1	9
Scruples of Incidence			33	6
At 1^{h} *before the visible* ☌ Mar.	27	20	53	18
Parallax of Longitude Orient.			8	7
True hourly motion of ☽ *from* ☉			34	16
Visible hourly motion			27	57
Time of Incidence		1	11	3
Beginning of the Eclipse March	27	20	42	15
At 1 *hour after the visible* ☌	27	22	53	18
Parallax of Longitude Occid.			5	54
Visible hourly motion of ☽ *from* ☉			30	20
Time of repletion		1	5	30
End of the Eclipse	27	22	58	48
The whole duration		2	16	33

Precept XXIII.

To finde the visible Latitude of the Moon at the beginning and end of the Suns Eclipse.

1 FOr the beginning, adde to the minutes of Incidence the motion of the Sun agreeing to the time of Incidence, and the sum subtract from the true motion of Latitude at the time of the visible Synod; so have you the true

true motion of Latitude at the beginning, by which finde the true Latitude, and at the same time finde the parallax of Latitude, and by these, according to the second rule of *Precept* 18 may be had the visible latitude.

Example.

		′	″
The Scruples of Incidence		33	6
Motion of ☉ answering to the time		2	54
The Sum	*subtr.*	36	0
Motion of Latitude at visible ☌	8	49	47
Motion of Latitude at beginning	8	13	47
True Latitude	*North*	42	41
Parallax of Latitude		49	22
Visible Latitude	*South*	6	41

2 For the end, adde to the minutes of Incidence, the motion of the Sun agreeing to the time of repletion, and the sum adde to the true motion of latitude at the time of the visible Conjunction; so have you the true motion of Latitude at the end; by which proceed as before to finde the visible Latitude.

Example.

	°	′	″
Scruples of Incidence		33	6
Mot. ☉ answering to time of repletion		2	39
The ſum *add.*		35	45
Motion of Latitude at the viſible ☾	8	49	47
Motion of Latitude at the ending	9	25	32
True Latitude *North*		48	50
Parallax of Latitude		39	33
Viſible Latitude *North*		9	17

The difference betwixt the viſible Conjunction, and the greateſt obſcuration, is (by reaſon of the ſmall viſible Latitude of the Moon) ſo little, it may ſafely be neglected.

Precept XXIV.

To delineate the Eclipſes of the Sun and Moon.

1 FOr the Moon, draw the lines A C and B D to interſect one another at right angles in E, which point of interſection is the place of the Ecliptick where the Eclipſe happens: upon which as a Center draw the Periphe-

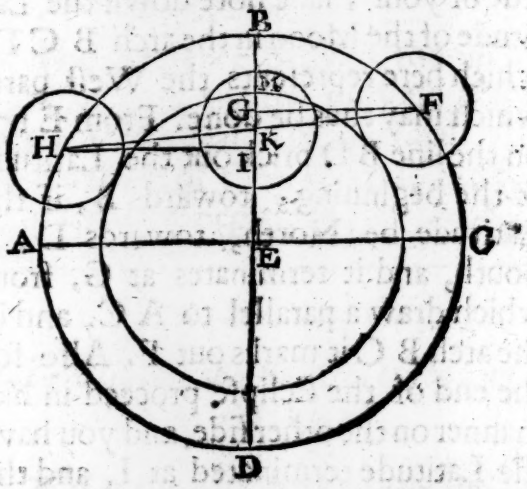
rie

rie A B C D, of the quantity of the ſum of the Semidiameters of the Moon and the earths ſhadow, (which may be done by help of a Scale or Sector of equall diviſions) alſo to the quantity of the Semidiameter of the earths ſhadow, draw upon the ſame Center another Peripherie. Then becauſe the Moons Eclipſe begins on the Eaſt part of her body, you muſt upon the Weſt ſide of your Plane note down the Latitude of the Moon in the arch B C D, which here repreſents the Weſt part, which may thus be done. From E upon the line B D prick out the Latitude at the beginning; towards B, if the Latitude be North, towards D, if South, and it terminates at G, from which draw a parallel to A C, and in the arch B C it marks out F. Alſo for the end of the Eclipſe proceed in like manner on the other ſide, and you have the Latitude terminated at I, and the parallel falling at H. Then draw a line betwixt F and H, and where it interſects B D mark with K. Laſtly, upon the Centers F, K, and H, draw three equall Circles, having for Radius the

Semidiameter of the Moon, and the work is done. *Example* of the forementioned Eclipse of the Moon *March* 15, 1652.

		°	′
Sum of Semidiameters E B		56	44
Semidiameter of shadow E M		41	2
Initiall latitude of ☽ E G	*North*	35	21
Finall latitude of ☽ E I	*North*	26	34
Semidiameter of ☽ M B		15	42

Typus Eclipseos Lunæ prædictæ.

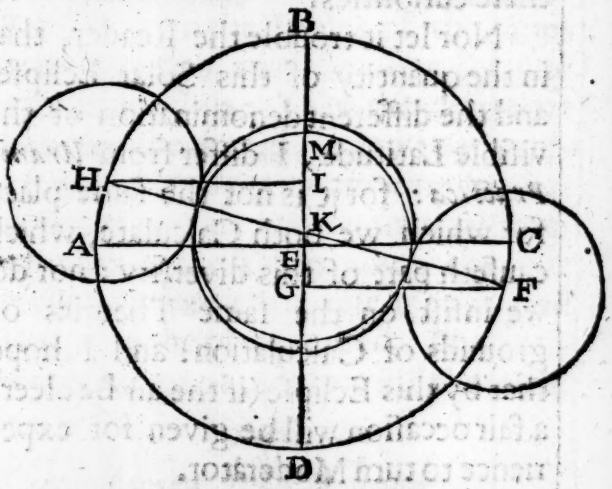


2 For the Eclipse of the Sun, it differs nothing at all from this of the Moon, but onely that instead of the Semidiameter of the shadow of the earth you use the Semidiameter of the Sun.

Sun, and the visible latitude for the true. *Example* of the forementioned Solar Eclipse *March 28, 1652.*

		°	′	″
Sum of Semidiameters E B			33	9
Semidiameter of the Sun E M			16	22
Initiall visible latitude E G	*South*		6	41
Finall visible latitude E I	*North*		9	17
Semidiameter of the ☽ M B			16	47

Typus Eclipseos Solis prædictæ.



Yet may the Practitioner take notice, that this delineation of Eclipses, especially in the Sun is not exactly certain, by reason of the motion of the Moon in a circular line, which is here represented straight; This in the Suns Ec-

Eclipſes is more arcuated by the diverſity of parallaxes, wherefore a more certain way were to prick down K, according to the viſible Latitude of the Moon at the middle; and then to draw a portion of a Circle, which ſhall paſſe by the three points F, K and H; but the former way failing little, we need not ſtand too much upon theſe curioſities.

Nor let it trouble the Reader, that in the quantity of this Solar Eclipſe, and the different denomination of the viſible Latitude, I differ from *Urania Practica:* for it is not the ſame place for which we both Calculate, which cauſeth part of this diverſity: nor do we inſiſt on the ſame Theories or grounds of Calculation: and I hope that by this Eclipſe (if the air be cleer) a fair occaſion will be given for experience to turn Moderator.

Precept XXV.

To finde the Longitudes and Latitudes of the fixed Stars.

TO this purpose we have exhibited a Table of the Longitudes and Latitudes of some of the most notable fixed Stars for the year 1650 compleat, which by the motions of the fixed Stars in the Tables of the Suns mean motions, may be done for any other time thus: Take the difference between the time given and 1650 compleat, and the motion agreeing to that difference; this motion subtract from the place in the Table, when the time given is before 1650, else adde it, and you have the place desired. The Latitudes and magnitudes are still the same.

Example.

The time given	1683 *September*		
Difference from 1650 Compl.	33 *ye.*	8 *mo.*	
Motion correspondent		28′	2″
Place of *Oculus* ♉ 1650 compl.	♊ 4	55	0
Place required	♊ 5	23	2
Latitude South	5	31	0

Pre-

Precept XXVI.

The use of the Table of Refractions.

ALthough the Table of Refractions belongs not to the Calculation of these Tables, yet will it not be amisse to shew its use in comparing of Observation with Calculation. Know then that Refraction causeth the Stars to appear higher then really they are. Therefore with an observed Altitude enter this Table, and take out the Refraction, which subtract from the observed Altitude, and you have the true Altitude. Or having the true Altitude, the apparent is found by adding the Refraction thereto. The matter is too plain to need an example.

Thus have I in as brief a way as possible delivered the method of Astronomicall Calculations, and I hope so plainly as will be obvious to any. If the Reader receive any advantage hereby, let him give God the glory, from whom alone proceeds

Πᾶσα δόσις ἀγαθὴ, καὶ πᾶν δώρημα τέλειον.

FINIS.

AN INDEX OF THE TABLES.

7 Con-

Tabulæ Britannicæ:

THE

BRITISH TABLES,

The First Part.

Briefly exhibiting *Logisticall Arithmetick* by *Logarithmes*; the Doctrine of the *PRIMUM MOBILE* necessary in these *Tables*, a Breviat of *Astronomicall Chronologie*, the *Ecclesiasticall Computation*, the *Æquation* and *Reduction* of *Time*.

LONDON,
Printed by *R.* & *W. Leybourn* for *Robert Boydell*, in the Bulwark neer the Tower, *MDCLIII.*

THE BRITISH TAILOR

A Table of Logiſticall Logarithms.

′	″	Logar.	H	′	′	″	Logar.	H	′
0	0	0	0	0	1	15	831876	0	30
		714267					2802		
0	5	714267	0	2	1	20	834678	0	32
		30103					2633		
0	10	744370	0	4	1	25	837311	0	34
		17609					2483		
0	15	761979	0	6	1	30	839794	0	36
		1494					2348		
0	20	774473	0	8	1	35	842142	0	38
		9691					2227		
0	25	784164	0	10	1	40	844369	0	40
		7918					2120		
0	30	792082	0	12	1	45	846489	0	42
		6695					2020		
0	35	798777	0	14	1	50	848509	0	44
		5799					1929		
0	40	804576	0	16	1	55	850438	0	46
		5115					1849		
0	45	809691	0	18	2	0	852287	0	48
		4576					1774		
0	50	814267	0	20	2	5	854061	0	50
		4139					1703		
0	55	818406	0	22	2	10	855764	0	52
		3779					1639		
1	0	822185	0	24	2	15	857403	0	54
		3476					1579		
1	5	825661	0	26	2	20	858982	0	56
		3218					1524		
1	10	828279	0	28	2	25	860506	0	58
		2997					1473		
1	15	831876	0	30	2	30	861979	1	00

A Table of Logisticall Logarithms.

′	″	Logar.	H	′
2	30	861979	1	0
		1424		
	35	863403		2
		1379		
	40	864782		4
		1336		
	45	866118		6
		1397		
	50	867415		8
		1258		
	55	868673		10
		1224		
3	0	869897		12
		1190		
	5	871087		14
		1158		
	10	872245		16
		1128		
	15	873373		18
		1100		
	20	874473		20
		1072		
	25	875545		22
		1047		
	30	876592		24
		1021		
	35	877613		26
		999		
	40	878612		28
		976		
3	45	879588	1	30

′	″	Logar.	H	′
3	45	879588	1	30
		955		
	50	880543		32
		934		
	55	881447		34
		914		
4	0	882391		36
		895		
	5	883286		38
		878		
	10	884164		40
		860		
	15	885024		42
		843		
	20	885867		44
		827		
	25	886694		46
		812		
	30	887506		48
		797		
	35	888303		50
		783		
	40	889086		52
		768		
	45	889854		54
		756		
	50	890610		56
		742		
	55	891352		58
		730		
5	0	892082	2	0

A Table of Logisticall Logarithms.

′	″	Logar.	H	′
5	0	892082	2	0
		718		
	5	892800		2
		706		
	10	893506		4
		696		
	15	894202		6
		683		
	20	894885		8
		674		
	25	895559		10
		662		
	30	896221		12
		653		
	35	896874		14
		643		
	40	897517		16
		635		
	45	898152		18
		625		
	50	898777		20
		616		
	55	899393		22
		607		
6	0	900000		24
		599		
	5	900599		26
		591		
	10	901190		28
		583		
6	15	901773	2	0

′	″	Logar.	H	′
6	15	901773	2	30
		575		
	20	902348		32
		568		
	25	902916		34
		560		
	30	703476		36
		553		
	35	904029		38
		547		
	40	904576		40
		539		
	45	905115		42
		533		
	50	905648		44
		527		
	55	906175		46
		520		
7	0	906695		48
		514		
	5	907209		50
		508		
	10	907717		52
		502		
	15	90 219		54
		496		
	20	908715		56
		491		
	25	909206		58
		485		
7	30	909691	3	00

A Table of Logisticall Logarithms.

′	″	Logar.	H	′	′	″	Logar.	H	′
7	30	909691	3	0	8	45	916385	3	30
		480					412		
	35	910171		2		50	916797		32
		474					408		
	40	910645		4		55	918105		34
		469					404		
	45	911114		6	9	0	917509		36
		465					400		
	50	911579		8		5	917909		38
		459					397		
	55	912038		10		10	918406		40
		454					393		
8	0	912492		12		15	918799		42
		450					390		
	5	912942		14		20	919189		44
		445					386		
	10	913387		16		25	919575		46
		441					382		
	15	913828		18		30	919957		48
		437					380		
	20	914265		20		35	920337		50
		434					376		
	25	914699		22		40	920713		52
		428					371		
	30	915127		24		45	921084		54
		423					370		
	35	915550		26		50	921454		56
		420					366		
	40	915970		28		55	921820		58
		415					364		
8	45	916385	3	30	10	0	922184	4	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′	′	″	Logar.	H	′
10	0	922182	4	0	11	15	927300	4	30
		361					320		
	5	922545		2		20	927620		32
		358					318		
	10	922903		4		25	927938		34
		354					316		
	15	923257		6		30	928254		36
		352					313		
	20	923609		8		35	928567		38
		349					313		
	25	923958		10		40	928880		40
		346					309		
	30	924304		12		45	929189		42
		342					307		
	35	924646		14		50	929496		44
		340					304		
	40	924986		16		55	929800		46
		338					303		
	45	925324		18	12	0	930103		48
		337					301		
	50	925661		20		5	930404		50
		333					297		
	55	925994		22		10	930701		52
		330					296		
11	0	926324		24		15	930997		54
		328					293		
	5	926652		26		20	931290		56
		324					292		
	10	926976		28		25	931582		58
		324					291		
11	15	927300	4	30	12	30	931875	5	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′	′	″	Logar.	H	′
12	30	931876	5	0	13	45	936015	5	30
		288					263		
	35	932164		2		50	936278		32
		287					260		
	40	932451		4		55	936538		34
		285					260		
	45	932736		6	14	0	936798		36
		282					257		
	50	933018		8		5	937055		38
		281					257		
	55	933299		10		10	937312		40
		280					253		
13	0	933579		12		15	937565		42
		277					253		
	5	933856		14		20	937818		44
		276					252		
	10	934132		16		25	938070		46
		274					250		
	15	934406		18		30	938320		48
		273					249		
	20	934679		20		35	938569		50
		270					249		
	25	934949		22		40	938818		52
		269					246		
	30	935218		24		45	939064		54
		267					245		
	35	935485		26		50	939309		56
		266					243		
	40	935751		28		55	939552		58
		264					242		
13	45	936015	5	30	15	0	939794	6	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
15	0	939794	6	0
		241		
	5	940035		2
		239		
	10	940274		4
		238		
	15	940512		6
		237		
	20	940749		8
		235		
	25	940984		10
		234		
	30	941218		12
		233		
	35	941451		14
		232		
	40	941683		16
		230		
	45	941913		18
		229		
	50	942142		20
		228		
	55	942370		22
		227		
16	0	942597		24
		225		
	5	942822		26
		225		
	10	943047		28
		223		
16	15	943270	6	30

′	″	Logar.	H	′
16	15	943270	6	30
		222		
	20	943492		32
		221		
	25	943713		34
		220		
	30	943933		36
		219		
	35	944152		38
		218		
	40	944370		40
		216		
	45	944586		42
		216		
	50	944802		44
		213		
	55	945015		46
		214		
17	0	945229		48
		213		
	5	945442		50
		212		
	10	945653		52
		211		
	15	945864		54
		209		
	20	946073		56
		208		
	25	946281		58
		208		
17	30	946489	7	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	″
17	30	946489	7	0
		206		
	35	946695		2
		205		
	40	946900		4
		205		
	45	947105		6
		204		
	50	947309		8
		202		
	55	947511		10
		201		
18	0	947712		12
		201		
	5	947913		14
		199		
	10	948112		16
		199		
	15	948311		18
		198		
	20	948509		20
		197		
	25	948706		22
		196		
	30	948902		24
		195		
	35	949097		26
		194		
	40	949291		28
		194		
18	45	949485	7	30

′	″	Logar.	H	′
18	45	949485	7	30
		192		
	50	949677		32
		192		
	55	949869		34
		191		
19	0	950060		36
		190		
	5	950250		38
		189		
	10	950439		40
		189		
	15	950628		42
		187		
	20	950815		44
		187		
	25	951002		46
		186		
	30	951188		48
		185		
	35	951373		50
		184		
	40	951557		52
		183		
	45	951740		54
		183		
	50	951923		56
		182		
	55	952105		58
		182		
20	0	252287	8	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
20	0	952287	8	0
		180		
	5	952467		2
		180		
	10	952647		4
		179		
	15	952826		6
		178		
	20	953004		8
		178		
	25	953182		10
		177		
	30	953359		12
		176		
	35	953535		14
		176		
	40	953711		16
		175		
	45	953886		18
		175		
	50	954061		20
		173		
	55	954234		22
		173		
21	0	954407		24
		172		
	5	954579		26
		171		
	10	954750		28
		171		
21	15	954921	8	30

′	″	Logar.	H	′
21	15	954921	8	30
		170		
	20	955091		32
		169		
	25	955260		34
		169		
	30	955429		36
		168		
	35	955597		38
		167		
	40	955764		40
		167		
	45	955931		42
		166		
	50	956097		44
		165		
	55	956262		46
		165		
22	0	956427		48
		164		
	5	956591		50
		164		
	10	956755		52
		163		
	15	956918		54
		162		
	20	957080		56
		162		
	25	957242		58
		161		
22	30	975403	9	0

A Table of Logisticall Logarithmes.

°	′	Logar.	H	′
22	30	957403	9	0
		161		
	35	957564		2
		160		
	40	957724		4
		159		
	45	957883		6
		159		
	50	958042		8
		158		
	55	958200		10
		158		
23	0	958358		12
		157		
	5	958515		14
		156		
	10	958671		16
		156		
	15	958827		18
		156		
	20	958983		20
		155		
	25	959138		22
		154		
	30	959292		24
		153		
	35	959445		26
		154		
	40	959599		28
		152		
23	45	959751	9	30

′	″	Logar.	H	′
23	45	959751	9	30
		152		
	50	959893		32
		152		
	55	960055		34
		151		
24	0	960206		36
		151		
	5	960357		38
		150		
	10	960507		40
		149		
	15	960656		42
		149		
	20	960805		44
		149		
	25	960954		46
		148		
	30	961102		48
		147		
	35	961249		50
		147		
	40	961396		52
		146		
	45	961542		54
		146		
	50	961688		56
		146		
	55	961834		58
		145		
25	0	961979	10	0

A Table of Logistical Logarithmes.

′	″	Logar.	H	′
25	0	961979	10	0
		144		
	5	962123		2
		144		
	10	962267		4
		144		
	15	962411		6
		143		
	20	962554		8
		143		
	25	962697		10
		142		
	30	962839		12
		142		
	35	962981		14
		141		
	40	963122		16
		141		
	45	963263		18
		140		
	50	963403		20
		140		
	55	963543		22
		139		
26	0	963682		24
		139		
	5	963821		26
		139		
	10	963960		28
		138		
26	15	964098	10	30

′	″	Logar.	H	′
26	15	964098	10	30
		138		
	20	964236		32
		137		
	25	964373		34
		136		
	30	964509		36
		137		
	35	964646		38
		136		
	40	964772		40
		135		
	45	964907		42
		135		
	50	965042		44
		135		
	55	965177		46
		134		
27	0	965311		48
		134		
	5	965455		50
		134		
	10	965599		52
		133		
	15	965722		54
		132		
	20	965854		56
		132		
	25	965986		58
		132		
27	30	966118	11	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
27	30	966118	11	0
		132		
	35	966250		2
		131		
	40	966381		4
		130		
	45	966511		6
		131		
	50	966642		8
		129		
	55	966771		10
		130		
28	0	966901		12
		129		
	5	967030		14
		129		
	10	967159		16
		128		
	15	967287		18
		128		
	20	967415		20
		127		
	25	967542		22
		127		
	30	967669		24
		127		
	35	967796		26
		127		
	40	967923		28
		126		
28	45	968049	11	30

′	″	Logar.	H	′
28	45	968049	11	30
		125		
	50	968174		32
		126		
	55	968300		34
		124		
29	0	968424		36
		125		
	5	968549		38
		125		
	10	968674		40
		124		
	15	968798		42
		123		
	20	968921		44
		123		
	25	969044		46
		123		
	30	969167		48
		123		
	35	969290		50
		122		
	40	969412		52
		122		
	45	969534		54
		121		
	50	969655		56
		121		
	55	969776		58
		121		
30	0	969897	12	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
30	0	969897	12	0
		121		
	5	970018		2
		120		
	10	970138		4
		120		
	15	970258		6
		119		
	20	970377		8
		119		
	25	970496		10
		119		
	30	970615		12
		118		
	35	970733		14
		118		
	40	970851		16
		118		
	45	970969		18
		118		
	50	971087		20
		117		
	55	971204		22
		117		
31	0	971321		24
		117		
	5	971438		26
		116		
	10	971554		28
		116		
31	15	971670	12	30

′	″	Logar.	H	′
31	15	971670	12	30
		116		
	20	971786		32
		115		
	25	971901		34
		115		
	30	972016		36
		115		
	35	972131		38
		114		
	40	972245		40
		114		
	45	972359		42
		114		
	50	972473		44
		114		
	55	972587		46
		113		
32	0	972700		48
		113		
	5	972813		50
		113		
	10	972926		52
		112		
	15	973038		54
		112		
	20	973150		56
		112		
	25	973262		58
		111		
32	30	973373	13	0

A Table of Logisticall Logarithmes.

°	′	Logar.	H	′
32	30	973373	13	0
		111		
	35	976484		2
		111		
	40	973595		4
		111		
	45	9737⁰6		6
		110		
	50	973816		8
		110		
	55	973926		10
		110		
33	0	974036		12
		110		
	5	974146		14
		109		
	10	974255		16
		109		
	15	974364		18
		109		
	20	974473		20
		108		
	25	974581		22
		108		
	30	974689		24
		108		
	35	974797		26
		108		
	40	974905		28
		107		
33	45	975012	13	30

°	′	Logar.	H	′
33	45	975012	13	30
		107		
	50	975119		32
		107		
	55	975226		34
		107		
34	0	975333		36
		107		
	5	975440		38
		105		
	10	975545		40
		105		
	15	975650		42
		105		
	20	975756		44
		106		
	25	975862		46
		105		
	30	975967		48
		104		
	35	976071		50
		105		
	40	976176		52
		104		
	45	976280		54
		104		
	50	976384		56
		104		
	55	976488		58
		104		
35	0	976592	14	0

A Table of Logisticall Logarithms.

′	″	Logar.	H	′
35	0	976592	14	0
		104		
	5	976696		2
		103		
	10	976799		4
		103		
	15	976902		6
		102		
	20	977004		8
		102		
	25	977106		10
		102		
	30	977208		12
		102		
	35	977310		14
		101		
	40	977411		16
		101		
	45	977512		18
		101		
	50	977613		20
		101		
	55	977714		22
		101		
36	0	977815		24
		101		
	5	977916		26
		100		
	10	978016		28
		100		
36	15	978116	14	30

′	″	Logar.	H	′
36	15	978116	14	30
		100		
	20	978216		32
		99		
	25	978315		34
		99		
	30	978414		36
		99		
	35	978513		38
		99		
	40	978612		40
		99		
	45	978711		42
		98		
	50	978809		44
		98		
	55	978907		46
		98		
37	0	979005		48
		98		
	5	979103		50
		98		
	10	979201		52
		97		
	15	979298		54
		97		
	20	979395		56
		97		
	25	979492		58
		96		
37	30	979588	15	00

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′	′	″	Logar.	H	′
37	30	979588	15	0	38	45	981012	15	30
		96					93		
	35	979684		2		50	981105		32
		96					93		
	40	979780		4		55	981198		34
		96					94		
	45	979876		6	39	0	981292		36
		96					93		
	50	979972		8		5	981385		38
		96					92		
	55	980068		10		10	981477		40
		96					92		
38	0	980164		12		15	981569		42
		95					92		
	5	980259		14		20	981661		44
		95					92		
	10	980354		16		25	981753		46
		95					92		
	15	980449		18		30	981845		48
		94					91		
	20	980543		20		35	987936		50
		94					92		
	25	980637		22		40	981028		52
		94					91		
	30	980731		24		45	982119		54
		94					91		
	35	980825		26		50	982210		56
		94					91		
	40	980919		28		55	982301		58
		93					90		
38	45	981012	15	30	40	0	982391	16	0

A Table of Logisticall Logarithms.

′	″	Logar.	H	′
40	0	982391 90	16	0
	5	982481 90		2
	10	982571 90		4
	15	982661 90		6
	20	982751 89		8
	25	982840 90		10
	30	982930 90		12
	35	983020 90		14
	40	983110 88		16
	45	983198 88		18
	50	983286 89		20
	55	983375 88		22
41	0	983463 88		24
	5	983551 88		26
	10	983639 88		28
41	15	983727	16	30

′	″	Logar	H	′
41	15	983727 88	16	30
	20	983815 88		32
	25	983903 87		34
	30	983990 87		36
	35	984077 87		38
	40	984164 87		40
	45	984251 87		42
	50	984338 86		44
	55	984424 86		46
42	0	984510 86		48
	5	984596 86		50
	10	984682 86		52
	15	984768 85		54
	20	984853 86		56
	25	984939 85		58
42	30	985024	17	00

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
42	30	9850248 6	17	0
	35	9851108 5		2
	40	9851958 5		4
	45	9852808 4		6
	50	9853648 4		8
	55	9854488 4		10
43	0	9855328 4		12
	5	9856168 4		14
	10	9857008 4		16
	15	9857848 3		18
	20	9858678 4		20
	25	9859518 4		22
	30	9860358 3		24
	35	9861188 3		26
	40	9862018 2		28
43	45	986283	17	30

′	″	Logar.	H	′
43	45	9862838 3	17	30
	50	9863668 2		32
	55	9864488 2		34
44	0	9865308 2		36
	5	9866128 2		38
	10	9866948 2		40
	15	9867768 2		42
	20	9868588 2		44
	25	9869408 1		46
	30	9870218 1		48
	35	9871028 1		50
	40	9871838 1		52
	45	9872648 0		54
	50	9873448 1		56
	55	9874258 1		58
45	0	987506	18	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
45	0	9875068	18	0
	5	9875868		2
	10	9896678		4
	15	9877478		6
	20	9878278		8
	25	9879079		10
	30	9879868		12
	35	9880669		14
	40	9881459		16
	45	9882249		18
	50	9883039		20
	55	9883829		22
46	0	9884619		24
	5	9885407		26
	10	9886187		28
46	15	9886966	18	30
46	15	9886966	18	30
	20	9887748		32
	25	9888528		34
	30	9889308		36
	35	9890088		38
	40	9890868		40
	45	9891648		42
	50	9892427		44
	55	9893197		46
47	0	9893967		48
	5	9894737		50
	10	9895497		52
	15	9896267		54
	20	9897027		56
	25	9897787		58
47	30	9898547	19	0

A Table of Logisticall Logarithmes.

°	′	″	Logar.	H	′
47	30		989854	19	0
			76		
	35		989930		2
			76		
	40		990006		4
			76		
	45		990082		6
			76		
	50		990158		8
			76		
	55		990234		10
			76		
48	0		990310		12
			75		
	5		990385		14
			75		
	10		990460		16
			75		
	15		990535		18
			75		
	20		990610		20
			75		
	25		990685		22
			75		
	30		990760		24
			74		
	35		990834		26
			74		
	40		990908		28
			74		
48	45		990982	19	30

°	′	″	Logar.	H	′
48	45		990982	19	30
			74		
	50		991056		32
			74		
	55		991130		34
			74		
49	0		991204		36
			74		
	5		991278		38
			74		
	10		991352		40
			74		
	15		991426		42
			74		
	20		991500		44
			73		
	25		991573		46
			73		
	30		991646		48
			73		
	35		991719		50
			73		
	40		991792		52
			73		
	45		991865		54
			73		
	50		991938		56
			72		
	55		992010		58
			72		
50	0		992082	20	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
50	0	992082	20	0
		72		
	5	992154		2
		72		
	10	992226		4
		72		
	15	992298		6
		72		
	20	992370		8
		72		
	25	992442		10
		72		
	30	992514		12
		72		
	35	992586		14
		71		
	40	992657		16
		72		
	45	992729		18
		71		
	50	992800		20
		72		
	55	992872		22
		71		
51	0	992943		24
		71		
	5	993014		26
		70		
	10	993084		28
		70		
51	15	993154	20	30

′	″	Logar.	H	′
51	15	993154	20	30
		71		
	20	993225		32
		71		
	25	993296		34
		70		
	30	993366		36
		70		
	35	993436		38
		70		
	40	993506		40
		70		
	45	993576		42
		70		
	50	993646		44
		70		
	55	993716		46
		69		
52	0	993785		48
		70		
	5	993855		50
		70		
	10	993925		52
		70		
	15	993995		54
		69		
	20	994064		56
		69		
	25	994133		58
		69		
52	30	994202	21	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
52	30	994202 70	21	0
	35	994272 69		2
	40	994341 68		4
	45	994409 68		6
	50	994477 68		8
	55	994545 68		10
53	0	994613 68		12
	5	994681 68		14
	10	994749 68		16
	15	994817 68		18
	20	994885 68		20
	25	994953 68		22
	30	995021 67		24
	35	995088 68		26
	40	995156 67		28
52	45	995223	21	30

′	″	Logar.	H	′
53	45	995223 68	21	30
	50	995291 67		32
	55	995358 67		34
54	0	995425 67		36
	5	995492 67		38
	10	995559 67		40
	15	995626 67		42
	20	995693 66		44
	25	995759 66		46
	30	995825 66		48
	35	995891 66		50
	40	995957 66		52
	45	996023 66		54
	50	996089 66		56
	55	996155 66		58
55	0	996221	22	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′
55	0	996221 66	22	0
	5	996287 66		2
	10	996353 66		4
	15	996419 65		6
	20	996484 65		8
	25	996549 65		10
	30	996614 65		12
	35	996679 65		14
	40	996744 65		16
	45	996809 65		18
	50	996874 65		20
	55	996939 65		22
56	0	997004 65		24
	5	997069 64		26
	10	997133 64		28
56	15	997197	22	30

′	″	Logar.	H	′
56	15	997197 64	22	30
	20	997261 64		32
	25	997325 64		34
	30	997389 64		36
	35	997453 64		38
	40	997517 64		40
	45	997581 64		42
	50	997645 64		44
	55	997709 64		46
57	0	997773 63		48
	5	997836 64		50
	10	997900 64		52
	15	997964 63		54
	20	998027 63		56
	25	998090 62		58
57	30	998152	23	0

A Table of Logisticall Logarithmes.

′	″	Logar.	H	′	′	″	Logar.	H	′
57	30	998152 63	23	0	58	45	999086 62	23	30
	35	998215 63		2		50	999148 62		32
	40	998278 63		4		55	999210 61		34
	45	998341 62		6	59	0	999271 61		36
	50	998403 62		8		5	999332 61		38
	55	998465 63		10		10	999393 61		40
58	0	998528 63		12		15	999454 61		42
	5	998591 62		14		20	999515 61		44
	10	998653 62		16		25	999576 60		46
	15	998715 62		18		30	999636 61		48
	20	998777 62		20		35	999697 61		50
	25	998839 62		22		40	999758 60		52
	30	998901 62		24		45	999818 61		54
	35	998963 61		26		50	999879 61		56
	40	999024 62		28		55	999940 60		58
58	45	999086	23	30	60	00	1000000	24	00

A Table of Logisticall Logarithms.

Secunda	Logar.	Logar.	Logar.
	1° 0′	1° 2′	1° 4′
0	1000000	1001424	1002804
	120	117	113
10	1000120	1001541	1002917
	120	116	113
20	1000240	1001657	1003030
	120	116	112
30	1000360	1001773	1003142
	120	116	112
40	1000480	1001889	1003254
	119	116	112
50	1000599	1002005	1003366
	119	115	111
	1° 1′	1° 3′	1° 5′
0	1000718	1002120	1003477
	118	115	111
10	1000836	1002235	1003588
	118	114	111
20	1000954	1002349	1003699
	118	114	111
30	1001072	1002463	1003810
	118	114	110
40	1001190	1002577	1003920
	117	114	110
50	1001307	1002691	1004030
	117	113	110
60	1001424	1002804	1004140

A Table of Logisticall Logarithms.

Secunda	Logar.	Logar.	Logar.
	1° 6′	1° 8′	1° 10′
0	1004140	1005437	1006694
	110	106	104
10	1004250	1005543	1006798
	109	106	103
20	1004359	1005649	1006901
	109	105	103
30	1004468	1005754	1007004
	109	105	103
40	1004577	1005859	1007107
	108	105	102
50	1004685	1005964	1007209
	108	105	102
	1° 7′	1° 9′	1° 11′
0	1004793	1006069	1007311
	108	104	102
10	1004901	1006173	1007413
	108	105	101
20	1005009	1006278	1007514
	107	104	101
30	1005116	1006382	1007615
	107	104	101
40	1005223	1006486	1007716
	107	104	101
50	1005330	1006590	1007817
	107	104	101
60	1005437	1006694	1007918

A Table of Ascensional differences

The height of the Pole.

Declin.	40		41		42		43		44		45		46	
	°	′	°	′	°	′	°	′	°	′	°	′	°	′
1	0	50	0	52	0	54	0	56	0	58	1	0	1	2
2	1	41	1	44	1	48	1	52	1	56	2	0	2	4
3	2	31	2	37	2	42	2	48	2	54	3	0	3	7
4	3	22	3	29	3	37	3	44	3	52	4	1	4	9
5	4	13	4	22	4	31	4	41	4	51	5	1	5	12
6	5	4	5	15	5	26	5	37	5	50	6	2	6	15
7	5	55	6	8	6	21	6	34	6	49	7	3	7	18
8	6	46	7	1	7	16	7	32	7	48	8	5	8	22
9	7	38	7	55	8	12	8	30	8	48	9	7	9	26
10	8	30	8	49	9	8	9	28	9	48	10	9	10	31
11	9	23	9	44	10	5	10	27	10	49	11	13	11	37
12	10	16	10	39	11	2	11	26	11	51	12	16	12	43
13	11	10	11	35	12	0	12	26	12	53	13	21	13	50
14	12	5	12	31	12	58	13	27	13	56	14	26	14	58
15	13	0	13	28	13	58	14	28	15	0	15	32	16	7
16	13	55	14	26	14	58	15	31	16	5	16	40	17	16
17	14	52	15	25	15	59	16	34	17	10	17	48	18	27
18	15	49	16	24	17	1	17	38	18	17	18	58	19	40
19	16	48	17	25	18	4	18	44	19	25	20	9	20	53
20	17	47	18	27	19	8	19	50	20	35	21	21	22	8
21	18	47	19	30	20	13	20	59	21	46	22	34	23	25
22	19	49	20	34	21	20	22	8	22	58	23	50	24	44
23	20	52	21	39	22	28	23	19	24	12	25	7	26	5
24	21	56	22	46	23	38	24	32	25	28	26	26	27	27
25	23	2	23	55	24	50	25	47	26	46	27	48	28	52
26	24	10	25	5	26	3	27	3	28	6	29	11	30	20
27	25	19	26	17	27	18	28	22	29	29	30	38	31	51
28	26	30	27	31	28	36	29	44	30	54	32	7	33	25
29	27	43	28	48	29	57	31	8	32	22	33	40	35	2
30	28	59	30	7	31	19	32	35	33	53	35	10	36	42
31	30	17	31	29	32	45	34	5	35	28	36	50	38	29
32	31	31	32	54	34	14	35	38	37	7	38	40	40	19

A Table of Ascensional differences

The height of the Pole.

Degrees.	47		48		49		50		51		52		53	
	o	′	o	′	o	′	o	′	o	′	o	′	o	′
1	1	04	1	07	1	09	1	12	1	14	1	17	1	20
2	2	09	2	13	2	18	2	23	2	28	2	34	2	39
3	3	13	3	20	3	27	3	35	3	43	3	51	3	59
4	4	18	4	27	4	37	4	47	4	57	5	08	5	19
5	5	23	5	35	5	47	6	00	6	12	6	26	6	40
6	6	28	6	42	6	57	7	12	7	27	7	44	8	01
7	7	34	7	50	8	07	8	25	8	43	9	02	9	23
8	8	40	8	59	9	18	9	38	10	00	10	22	10	45
9	9	47	10	08	10	30	10	53	11	17	11	42	12	08
10	10	54	11	18	11	42	12	08	12	35	13	03	13	32
11	12	02	12	28	12	55	13	24	13	53	14	24	14	57
12	13	11	13	39	14	09	14	40	15	13	15	47	16	23
13	14	20	14	51	15	24	15	58	16	34	17	11	17	50
14	15	30	16	05	16	40	17	17	17	56	18	37	19	19
15	16	42	17	19	17	57	18	39	19	19	20	04	20	50
16	17	54	18	34	19	16	19	59	20	44	21	32	22	22
17	19	08	19	51	20	36	21	22	22	11	23	01	23	56
18	20	23	21	09	21	57	22	47	23	39	24	34	25	33
19	21	40	22	29	23	20	24	14	25	10	26	09	27	11
20	22	58	23	51	24	45	25	42	26	43	27	46	28	53
21	24	18	25	14	26	12	27	14	28	18	29	26	30	32
22	25	40	26	40	27	42	28	47	29	56	31	08	32	25
23	27	05	28	08	29	14	30	23	31	37	32	54	34	17
24	28	31	29	38	30	04	32	03	33	21	34	44	36	13
25	30	00	31	12	32	26	33	46	35	10	36	39	38	14
26	31	32	32	48	34	8	35	32	37	02	38	38	40	20
27	33	07	34	28	35	53	37	23	39	00	40	42	42	33
28	34	46	36	12	37	43	39	19	41	02	42	53	44	53
29	36	28	38	00	39	37	41	21	43	12	45	12	47	21
30	38	55	39	53	41	37	43	29	45	29	47	35	50	01
31	40	07	41	52	43	44	45	44	47	54	50	16	52	53
32	42	04	43	57	45	57	48	08	50	30	53	07	56	01

A Table of Ascensional differences

The height of the Pole.

Decli.	54		55		56		57		58		59		60	
	°	′	°	′	°	′	°	′	°	′	°	′	°	′
1	1	23	1	26	1	29	1	32	1	36	1	40	1	44
2	2	45	2	52	2	58	3	05	3	12	3	20	3	28
3	4	08	4	17	4	27	4	38	4	49	5	00	5	12
4	5	31	5	44	5	57	6	11	6	25	6	41	6	57
5	6	55	7	11	7	27	7	44	8	03	8	22	8	43
6	8	19	8	38	8	58	9	19	9	41	10	04	10	29
7	9	44	10	06	10	29	10	54	11	20	11	47	12	17
8	11	09	11	35	12	01	12	30	13	00	13	32	14	05
9	12	35	13	04	13	35	14	07	14	41	15	17	15	55
10	14	03	14	35	15	09	15	45	16	23	17	04	17	47
11	15	31	16	07	16	45	17	25	18	08	18	53	19	41
12	17	00	17	40	18	22	19	06	19	53	20	43	21	36
13	18	32	19	15	20	01	20	50	21	41	22	36	23	39
14	20	04	20	52	21	42	22	35	23	31	24	31	25	35
15	21	38	22	36	23	24	24	22	25	23	26	29	27	34
16	23	15	24	10	25	09	26	12	27	19	28	30	29	47
17	24	53	25	53	26	57	28	05	29	18	30	35	31	59
18	26	34	27	39	28	48	30	01	31	20	32	44	34	19
19	28	17	29	27	30	41	32	01	33	26	34	58	36	37
20	30	04	31	19	32	39	34	05	35	37	37	17	39	05
21	31	54	33	15	34	41	36	14	37	54	39	42	41	40
22	33	47	35	14	36	48	38	28	40	17	42	15	44	25
23	35	45	37	19	39	00	40	49	42	47	44	57	47	20
24	37	48	39	29	41	18	43	17	45	26	47	49	50	27
25	39	59	41	45	43	44	45	54	48	16	50	54	53	52
26	42	10	44	09	46	18	48	41	51	19	54	16	57	39
27	44	32	46	41	49	04	51	41	54	38	58	00	61	57
28	47	02	49	24	52	01	54	58	58	19	62	14	67	04
29	49	44	52	20	55	16	58	36	62	31	67	18	73	46
30	52	37	55	32	58	52	62	45	67	31	73	55	90	00
31	55	48	59	06	62	58	67	42	74	04	90	00		
32	59	19	63	10	67	53	74	12	90	00				

The Declination and Meridian Angles.

Gr.	♈ ♎ Declin.	Ang.	♉ ♍ Declin.	Ang.	♊ ♐ Declin.	Ang.	Gr.
	° ′ ″	° ′	° ′ ″	° ′	° ′ ″	° ′	
0	0 0 0	66 28	11 30 42	69 20	20 13 22	77 42	30
1	0 23 56	66 28	11 51 48	69 31	20 25 57	78 4	29
2	0 47 53	66 29	12 12 40	69 43	20 38 9	78 26	28
3	1 11 49	66 30	12 33 21	69 55	20 49 58	78 48	27
4	1 35 43	66 31	12 53 49	70 8	21 1 25	79 11	26
5	1 59 37	66 33	13 14 5	70 21	21 12 29	79 34	25
6	2 23 28	66 35	13 34 7	70 35	21 23 7	79 57	24
7	2 47 16	66 38	13 53 57	70 49	21 33 22	80 20	23
8	3 11 4	66 41	14 13 32	71 3	21 43 15	80 43	22
9	3 34 47	66 44	14 32 53	71 18	21 52 42	81 7	21
10	3 58 28	66 47	14 51 59	71 33	22 1 45	81 31	20
11	4 22 4	66 51	15 10 50	71 48	22 10 22	81 55	19
12	4 45 37	66 55	15 29 26	72 4	22 18 35	82 19	18
13	5 9 5	67 0	15 47 47	72 20	22 26 22	82 44	17
14	5 32 29	67 5	16 5 51	72 36	22 33 44	83 9	16
15	5 55 47	67 11	16 23 39	72 53	22 40 39	83 34	15
16	6 18 58	67 17	16 41 19	73 10	22 47 10	83 59	14
17	6 42 6	67 24	16 58 22	73 27	22 53 13	84 24	13
18	7 5 6	67 31	17 15 18	73 45	22 58 51	84 50	12
19	7 28 0	67 38	17 31 54	74 3	23 4 3	85 15	11
20	7 50 46	67 45	17 48 14	74 21	23 8 47	85 41	10
21	8 13 26	67 53	18 4 14	74 40	23 13 5	86 6	9
22	8 35 58	68 1	18 19 57	74 59	23 16 56	86 32	8
23	8 58 20	68 9	18 35 18	75 18	23 20 20	86 58	7
24	9 20 34	68 18	18 50 21	75 38	23 23 18	87 24	6
25	9 42 41	68 28	19 5 4	75 58	23 25 48	87 50	5
26	10 4 38	68 38	19 19 26	76 18	23 27 51	88 16	4
27	10 26 24	68 48	19 33 27	76 39	23 29 27	88 42	3
28	10 48 2	68 58	19 47 7	77 0	23 30 35	89 8	2
29	11 9 27	69 9	20 0 26	77 21	23 31 17	89 34	1
30	11 30 42	69 20	20 13 22	77 42	23 31 30	90 0	0
	♓ ♍		♒ ♌		♑ ♋		

A Table of Right Ascensions.

	♈		♉		♊		♋		♌		♍	
	°	′	°	′	°	′	°	′	°	′	°	′
0	0	00	27	54	57	48	90	00	122	12	152	06
1	0	55	28	51	58	51	91	05	123	14	153	04
2	1	50	29	49	59	53	92	11	124	16	154	01
3	2	45	30	46	60	56	93	16	125	19	154	58
4	3	40	31	44	61	59	94	22	126	20	155	55
5	4	35	32	42	63	3	95	27	127	22	156	51
6	5	30	33	40	64	6	96	32	128	24	157	48
7	6	25	34	38	65	9	97	38	129	25	158	44
8	7	21	35	37	66	13	98	43	130	26	159	40
9	8	16	36	36	67	17	99	48	131	27	160	37
10	9	11	37	34	68	21	100	53	132	28	161	33
11	10	06	38	33	69	25	101	58	133	28	162	29
12	11	02	39	33	70	29	103	03	134	29	163	25
13	11	57	40	32	71	34	104	08	135	29	164	20
14	12	53	41	31	72	38	105	13	136	29	165	16
15	13	48	42	31	73	43	106	17	137	29	166	12
16	14	44	43	31	74	47	107	22	138	29	167	07
17	15	40	44	31	75	52	108	26	139	28	168	03
18	16	35	45	31	76	57	109	31	140	27	168	58
19	17	31	46	32	78	2	110	35	141	27	169	54
20	18	27	47	32	79	7	111	39	142	26	170	49
21	19	23	48	33	80	12	112	43	143	24	171	44
22	20	20	49	34	81	17	113	47	144	23	172	39
23	21	16	50	35	82	22	114	51	145	22	173	35
24	22	12	51	36	83	28	115	54	146	20	174	30
25	23	09	52	38	84	33	116	57	147	18	175	25
26	24	06	53	40	85	38	118	01	148	16	176	20
27	25	02	54	41	86	44	119	04	149	14	177	15
28	25	59	55	43	87	49	120	07	150	11	178	10
29	26	57	56	46	88	55	121	09	151	9	179	05
30	27	54	57	48	90	0	122	12	152	6	180	00

A Table of Right Ascensions.

	♎		♏		♐		♑		♒		♓	
	°	′	E°	′	°	′	°	′	°	′	°	′
0	180	00	207	54	237	48	270	00	302	12	332	6
1	180	55	208	51	238	51	271	5	303	14	333	4
2	181	50	209	49	239	53	272	11	304	16	334	1
3	182	45	210	46	240	56	273	16	305	19	334	58
4	183	40	211	44	241	59	274	22	306	20	335	55
5	184	35	212	42	243	3	275	27	307	22	336	51
6	185	30	213	40	244	6	276	32	308	24	337	48
7	186	25	214	38	245	9	277	38	309	25	338	44
8	187	21	215	37	246	13	278	43	310	26	339	40
9	188	16	216	36	247	17	279	48	311	27	340	37
10	189	11	217	34	248	21	280	53	312	28	341	33
11	190	6	218	33	249	25	281	58	313	28	342	29
12	191	2	219	33	250	29	283	3	314	29	343	25
13	191	57	220	32	251	34	284	8	315	29	344	20
14	192	53	221	31	252	38	285	13	316	29	345	16
15	193	48	222	31	253	43	286	17	317	29	346	12
16	194	44	223	31	254	47	287	22	318	29	347	7
17	195	40	224	31	255	52	288	26	319	28	348	3
18	196	35	225	31	256	57	289	31	320	27	348	58
19	197	31	226	32	258	2	290	35	321	27	349	54
20	198	27	227	32	259	7	291	39	322	26	350	49
21	199	23	228	33	260	12	292	43	323	24	351	44
22	200	20	229	34	261	17	293	47	324	23	352	39
23	201	16	230	35	262	22	294	51	325	22	353	35
24	202	12	231	36	263	28	295	54	326	20	354	30
25	203	9	232	38	264	33	296	57	327	18	355	25
26	204	6	233	40	265	38	298	1	328	16	356	20
27	205	2	234	41	266	44	299	4	329	14	357	15
28	205	59	235	43	267	49	300	7	330	11	358	10
29	206	57	236	46	268	55	301	9	331	9	359	5
30	207	54	237	48	270	0	302	12	332	6	360	0

A view of the more notable *Epochæ*

Epochæ	*Anni Per. Jul.*	*Mensis*
Periodus Juliana	1	*Januar.* 1
Mundi Creatio	765	*Januar.* 1
Æra Olympiadum	3938	*Jul.* 8
Urbs condita	3961	*April.* 21
Epocha Nabonnassari	3967	*Februar.* 26
Initium Cyclorum Metonis	4281	*Iun.* 26
Initium Periodorum Calippi	4384	*Jun.* 28
Obitus Alexandri magni	4390	*Novemb.* 12
Æra Chaldæorum	4403	*Octob.* 15
Æra Dionysii	4429	*Mart.* 25
Initium annorum Christi Dei incidit in annum Periodi Julianæ 4713 completum.	*Anni Chr. Dei.*	*Mensis*
Æra Martyrum Coptitarum	284	*August.* 29
Æra Turcica Hegyræ	622	*Jul.* 16
Æra Jesdagirdica	632	*Iun.* 16
Æra Sultanica	1079	*Mart.* 14

Dies in Annis.

Julianis								Egypt. & Perſic.							
1	0	0	0	365	2	5	0	1	0	0	0	365	0	0	0
2	0	0	0	730	5	0	0	2	0	0	0	730	0	0	0
3	0	0	0	1095	7	5	0	3	0	0	0	1095	0	0	0
4	0	0	0	1461	0	0	0	4	0	0	0	1460	0	0	0
5	0	0	0	1826	2	5	0	5	0	0	0	1825	0	0	0
6	0	0	0	2191	5	0	0	6	0	0	0	2190	0	0	0
7	0	0	0	2556	7	5	0	7	0	0	0	2555	0	0	0
8	0	0	0	2922	0	0	0	8	0	0	0	2920	0	0	0
9	0	0	0	3287	2	5	0	9	0	0	0	3285	0	0	0
10	0	0	0	3652	5	0	0	10	0	0	0	3650	0	0	0

Dies in Menſibus.

Julianis Com.		Biſſ	Egyptiis		Perſicis	
Januar.	31	31	Thoth	30	Pharvardin	30
Februar.	59	60	Paophi	60	Arripeheſt	60
Martius	90	91	Athyr	90	Chortat	90
Aprilis	120	121	Chæac	120	Tyrma	120
Maius	151	152	Tybi	150	Mertat	150
Junius	181	182	Mechir	180	Sachrur	180
Julius	212	213	Phamenoth	210	Mecherma	210
Auguſt.	243	244	Parmuthi	240	Apanma } Wahak }	245
Septemb.	273	274	Pachon	270		
Octob.	304	305	Payni	300	Aderma	275
Novemb:	334	335	Ephephi	330	Dima	305
Decemb.	365	366	Meſori	360	Pechmam	335
			Epagomena	365	Aſphander	365

Dies in Annis Turcicis seu Arabicis.

an	dies	an	dies	anni	dies
1	354	14	4961	27	9568
2	709	15	5315	28	9922
3	1063	16	5670	29	10276
4	1417	17	6024	30	10631
5	1772	18	6378	60	21262
6	2126	19	6733	90	31893
7	2480	20	7087	120	42524
8	2835	21	7442	150	53155
9	3189	22	7796	180	63786
10	3543	23	8150	210	74417
11	3898	24	8505	240	85048
12	4252	25	8859	270	95679
13	4607	26	9213	300	106310

Dies in Mensibus Turcicis.

Muharram	30	*Sahaben*	236
Sephar	59	*Ramadhan*	266
Rabie I	89	*Schevall*	295
Rabie II	118	*Dulkadati*	325
Giumadi I	148	*Dulhajati*	354
Giumadi II	177	*Dsilhittsche, Turc. in anno abundanti*	355
Regeb	207		

The Anticipation of the Gregorian Calender.

	d.	A.D	d.	A.D	d.	A.D.	d.	A.D.
A 5 Octob.	10	1582						
	11	1700	14	2100	17	2500	20	2900
A 24 Febr.	12	1800	15	2200	18	2600	21	3000
	13	1900	16	2300	19	2700	22	3100

In Calendario veteri concurrunt.				*In Calendario novo concurrunt ad annum 1700 exclusivè.*			
Aurei	*Epact.*	*Cycl. ☉*	*Lit. Dō.*	*Aurei*	*Epact.*	*Cycl. ☉*	*Lit. Dō.*
1	11	1	G f	1	1	1	C b
2	22	2	e	2	12	2	a
3	3	3	d	3	23	3	g
4	14	4	c	4	4	4	f
5	25	5	B a	5	15	5	E d
6	6	6	g	6	26	6	c
7	17	7	f	7	7	7	b
8	28	8	e	8	18	8	a
9	9	9	D d	9	29	9	G f
10	20	10	c	10	10	10	e
11	1	11	b	11	21	11	d
12	12	12	a	12	2	12	c
13	23	13	F g	13	13	13	B a
14	4	14	e	14	24	14	g
15	15	15	d	15	5	15	f
16	26	16	c	16	16	16	e
17	7	17	A b	17	27	17	D d
18	18	18	g	18	8	18	c
19	29	19	f	19	19	19	b
		20	e			20	a
		21	C d			21	F g
		22	c			22	e
		23	b			23	d
		24	a			24	c
		25	E g			25	A b
		26	f			26	g
		27	e			27	f
		28	d			28	e

In Calendario novo concurrunt:

Ab anno 1700 *inclusivè, ad annum* 1800 *exclusivè.*

Aureus	*Epacta*	*Cycl* ⊙	*Lit Do.*
1	*	1	D c
2	11	2	b
3	22	3	a
4	3	4	g
5	14	5	F e
6	25	6	d
7	6	7	c
8	17	8	b
9	28	9	A g
10	9	10	f
11	20	11	e
12	1	12	d
13	12	13	C b
14	23	14	a
15	4	15	g
16	15	16	f
17	26	17	E d
18	7	18	c
19	18	19	b
		20	a
		21	G f
		22	e
		23	d
		24	c
		25	B a
		26	g
		27	f
		28	e

Ab anno 1800 *inclusivè, ad annum* 1900 *exclusivè.*

Aureus	*Epacta*	*Cycl* ⊙	*Lit. Do.*
1	*	1	E d
2	11	2	c
3	22	3	b
4	3	4	a
5	14	5	G f
6	25	6	e
7	6	7	d
8	17	8	c
9	28	9	B a
10	9	10	g
11	20	11	f
12	1	12	e
13	12	13	D c
14	23	14	b
15	4	15	a
16	15	16	g
17	26	17	F e
18	7	18	d
19	18	19	c
		20	b
		21	A g
		22	f
		23	e
		24	d
		25	C b
		26	a
		27	g
		28	f

A Table of Easter.

Lit. Dō.	Aurem	Epacta	Pascha	Advent
D	16 2, 5, 10, 13, 4, 7, 12, 15, 18 1, 6, 9, 17, 3, 8, 11, 14, 19	23, 22, 21, 20, 19, 18, 17, 16 15, 14, 13, 12, 11, 10, 9 8, 7, 6, 5, 4, 3, 2 1, *, 29, 28, 27, 26, 25, 24	Mar. 22 29 April 4 12 19	Novemb. 29
E	5, 16, 2, 10, 13, 18, 1, 4, 7, 12, 15 6, 9, 14, 17, 3, 8, 11, 19,	23, 22, 21, 20, 19, 18, 17, 16, 15 14, 13, 12, 11, 10, 9, 8 7, 6, 5, 4, 3, 2, 1 *, 29, 28, 27, 26, 25, 24	Mar 23 30 Apr. 6 13 20	Novemb. 30
F	5, 16, 2, 7, 10, 13, 18 1, 4, 12, 15, 3, 6, 9, 14, 17 8, 11, 19,	23, 22, 21, 20, 19, 18, 17, 16, 15, 14 13, 12, 11, 10, 9, 8, 7 6, 5, 4, 3, 2, 1, * 29, 28, 27, 26, 25, 24,	Mar. 24 31 Apr. 7 14 21	Decemb. 1
G	5, 13, 16, 2, 7, 10, 18, 1, 4, 9, 12, 15 3, 6, 14, 17, 8, 11, 19,	23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13 12, 11, 10, 9, 8, 7, 6 5, 4, 3, 2, 1, *, 29 28, 27, 26, 25, 24,	Mar. 25 Apr. 1 8 15 22	Decemb. 2
A	2, 5, 13, 16, 7, 10, 15, 18, 1, 4, 9, 12, 3, 6, 11, 14, 17 8, 19,	23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12 11, 10, 9, 8, 7, 6, 5 4, 3, 2, 1, *, 29, 28 27, 26, 25, 24,	Mar. 26 Apr. 2 9 16 23	Decemb. 3
B	2, 5, 13, 16, 4, 7, 10, 15, 18 1, 9, 12, 17 3, 6, 11, 14 8, 19	23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11 10, 9, 8, 7, 6, 5, 4 3, 2, 1, *, 29, 28, 27 26, 25, 24,	Mar. 27 Apr. 3 10 17 24	Novemb. 27
C	2, 5, 10, 13, 16 4, 7, 15, 18, 1, 6, 9, 12, 17 3, 11, 14, 19, 8,	23, 22, 21, 20, 19, 18, 17 16, 15, 14, 13, 12, 11, 10 9, 8, 7, 6, 5, 4, 3 2, 1, *, 29, 28, 27, 26 25, 24,	Mar. 28 Apr. 4 11 18 25	Novemb. 28

A Table of Feasts.

D	January		February		March		April	
1	Circúc.	a	Ignat.	d		d		g
2		b	Purif. M.	e		e	Frã. de Pa	a
3		c	Blasius	f		f		b
4		d		g	Lucius	g		c
5	Telesp.	e	Agatha	a		a		d
6	Epiph.	f	Doroth.	b		b		e
7		g		c	Th. de A.	c		f
8		a		d		d		g
9		b	Apollon	e	40 Mart.	e		a
10		c		f		f		b
11	Hygin.	d		g		g	Leo Pap.	c
12		e		a	Gregor.	a		d
13		f		b		b		e
14	Hilarius	g	Valentin	c		c	T. V. M.	f
15	Paul. Er.	a	Fau. et Jo	d		d		g
16	Marcel.	b		e		e		a
17	Antó. ab.	c		f		f	Anicet.	b
18	Cáth. s. P	d	Simeon	g		g		c
19		e		a	Jos. conf.	a		d
20	Fab. et Se.	f		b		b		e
21	Agnes	g		c	Benedict	c		f
22	Vincent	a		d		d	Soter. cap	g
23		b		e		e	Georg.	a
24	Timoth.	c	Math. ap	f		f		b
25	Cõ. Paul	d		g	An. Mar.	g	Mark E.	c
26	Polycarp	e		a		a		d
27		f		b		b		e
28		g		c		c	Vitalis	f
29		a				d	Cathar.	g
30		b				e		a
31		c				f		

A Table of Feasts.

D	May		June		July		Aug.	
1	Phil. Jac.	b		e		g	Pet. Vin.	c
2		c	Marcell.	f	Vis Mar.	a	Steph.	d
3	Inv. Cr.	d		g		b		e
4		e		a		c		f
5		f		b		d	Ded Ma.	g
6	Jo p. lat.	g		c		e	Tranf. Da	a
7		a		d		f		b
8	Ap. Mic.	b		e		g		c
9		c	Primus	f		a		d
10		d		g	7 fratr.	b	Laurent.	e
11		e	Barnab.	a		c		f
12		f		b	Nabor.	d		g
13		g	Anton.	c		e		a
14	Bonnif.	a	Basil.	d	Bonav.	f		b
15		b		e		g	Assū. M.	c
16	Ubald.	c		f		a		d
17		d		g	Alexius	b		e
18		e		a		c		f
19	Pudent.	f	Gervas.	b		d		g
20		g		c	Margar.	e	Bernard	a
21		a		d		f		b
22		b		e	Ma. Magg			c
23		c		f		a		d
24		d	Jo. Bapt.	g		b	Bart. ap.	e
25	Urban.	e		a	Jacob. apt			f
26		f		b		d		g
27	Jo. pap.	g		c		e		a
28		a		d		f	Auguſt.	b
29		b	Leo	e	Martha	g	Decoll.	c
30	Felix	c	Pet. ap.	f		a		d
31	Petron	d				b		e

A Table of Feasts.

D	*Septemb.*		*October.*		*Novemb.*		*Decemb.*	
1	Ægid.	f	Remig.	a	OmSan.	d		f
2		g		b	Om.An.	e	Bibiana	g
3		a		c		f		a
4		b	Franc.	d	Vital.	g	Barbara	b
5		c		e		a		c
6		d		f		b		d
7		e	Marc.pa.	g		c	Ambros.	e
8	Nat.Ma.	f		a		d	Conc.M.	f
9	Gorgō.	g	Dionys.	b		e		g
10		a		c	Tryph.	f		a
11		b		d	Martin.	g		b
12		c		e		a		c
13		d		f		b	Lucia	d
14	Exal.Cr.	e	Callistus	g		c		e
15		f		a		d	Euseb.	f
16	Cornel.	g		b		e		g
17		a		c	Gregor.	f		a
18		b	Lucas	d		g		b
19		c		e	Pontian.	a		c
20		d		f		b		d
21	Mat.Ev.	e	Hilarion	g	Obl.Mar.	c	Tho.ap.	e
22		f		a		d		f
23	Linus	g		b		e		g
24		a		c		f		a
25		b	Crysant.	d	Cathar.	g	Na.Chr.	b
26	Cyprian.	c		e		a	Stephan.	c
27		d		f		b	Joh.Ev.	d
28		e	Sim.Jud.	g		c	Innoc.	e
29	Ded.Mi.	f		a		d	Th.Cant.	f
30	Hieron.	g		b	Andr.ap.	e		g
31				c			Silvest.	a

A Catalogue of some famous places, with their Latitude, and distance in Longitude from the Meridian of *LONDON*.

Nomina Locorum.		*Tempus* H ′	*Polus* ° ′
Aberdonia Scotiæ	♑	0 7	58 40
Adrianopolis Thraciæ	A	2 4	43 20
Agria Hungariæ	A	1 21	47 56
Alba Julia Transylvaniæ	A	1 32	47 0
Alepus Syriæ *	A	2 25	37 20
Alexandria Ægypti *	A	2 11	30 58
Algiera Africæ	A	0 23	35 36
Amstelodamum Hollandiæ *	A	0 21	52 25
Antwerpia Brabantiæ *	A	0 17	51 12
Aracta Chaldææ	A	3 18	36 00
Arbela Assyriæ	A	3 45	37 15
Astracan Circassorum ad Wolgam	A	3 58	50 0
Athenæ Græciæ	A	1 52	37 42
Aurelianum Galliæ. Orleans *	A	0 0	48 8
Bamberga Franconiæ	A	0 45	49 37

Nomina Locorum			*Tempus* H ′	*Polus* ° ′
Bononia Italiæ		A	0 43	43 49
Brunduſium Calabriæ		A	1 17	40 32
Bulgaria Tartarorum		A	4 02	56 0
Burgos Hiſpaniæ		S	0 15	42 40
Calecutum Indiæ		A	5 50	11 30
Cantabrigia Angliæ	**	A	0 2	52 20
Carthago Africæ		A	0 41	34 50
Caſan Tartariæ		A	4 0	58 0
Caſſellæ Haſſiæ		A	0 44	51 19
Cayrum Ægypti. Gran Cair	*	A	2 16	29 50
Chalcedon		A	2 20	43 15
Cheſtria Angliæ	**	S	0 10	53 16
Cochin Indiæ		A	5 54	9 54
Cola Lappiæ		A	2 18	69 24
Colberg Pomeraniæ		A	1 2	54 28
Compoſtella Hiſpaniæ		S	0 38	43 0
Conſtantinopolis Thraciæ		A	2 18	43 0
Conymbria Luſitaniæ		S	0 35	40 15
Cracovia Poloniæ		A	1 21	49 58
Crima Tartariæ Præcopenſis		A	2 42	47 50
Damaſcus Syriæ		A	3 16	34 0
Dantiſcum Boruſſiæ, Dantzik	*	A	1 08	54 23
Duacum Arteſiæ Doüay		A	0 14	50 24
Eborracum Britanniæ	**	S	0 3	54 2
Edinburgum Scotiæ	**	S	0 2	55 57
Epidaurus Peloponneſis		A	1 52	35 30
Famaguſta Cypri		A	2 57	35 30
Francofordium ad Mænum		A	0 33	50 7
Francofordium ad Oderam		A	0 58	52 20
Fruеburgum Boruſſiæ		A	1 22	54 22

Nomina Locorum			*Tempus* H ′	*Polus* ° ′
Franekera Frisiæ	**	A	0 23	51 12
Goesa Zelandiæ		A	0 17	51 30
Gratium Styriæ		A	1 4	47 2
Groninga Frisiæ		A	0 26	53 15
Hamburgum Holsatiæ		A	0 40	53 43
Haphnia Daniæ	**	A	0 49	55 43
Lincium Norici		A	1 0	48 16
Lipsia Misniæ		A	0 49	51 24
Liverpolia Angliæ	**	S	0 10	53 22
LONDINUM Angliæ	**		⊙ 0	51 32
Lovanium Brabantiæ	*	A	0 20	50 50
Lugdunum Batavorum	*	A	0 19	52 11
Lutetia Parisiorum		A	0 8	48 39
ex Bullialdi correct.	*		0 2	48 51
Middleburgum Zelandiæ		A	0 16	51 30
Mancheſtria Angliæ	**	S	⊙ 9	53 24
Neapolis Italiæ		A	0 58	40 42
Nicomedia Bithyniæ		A	2 23	42 30
Nidrosia Norvegiæ		A	0 34	63 12
Norimberga Germaniæ		A	0 46	49 26
Novocastrum Angliæ, Newcastle	**	S	0 1	55 3
Oxonium Angliæ	**	S	0 3	52 4
Patavium Liburniæ		A	0 46	45 6
Praga Bohemiæ		A	0 56	50 6
Rhodus insula		A	3 26	36 0
Roffa Angliæ, *Rochester*	**	A	0 2	51 30
Roma Italiæ	**	A	0 50	42 2
Rothomagus Normanniæ	*		0 0	49 38
Rupella Aquitaniæ, *Rochell.*		S	0 4	45 49
Salisburgum Norici		A	2 55	47 42

Nomina Locorum.		*Tempus*	H ′	*Polus* ° ′
Salveldia Thuringiæ		A	0 44	50 47
Smarcanda Tartariæ		A	5 40	45 0
Scutara Dalmatiæ		A	1 26	42 20
Sevilia Hiſpaniæ		S	0 22	37 20
Spahani Perſidis		A	4 20	31 30
Stetinum Pomeraniæ		A	0 58	53 36
Syracuſa Siciliæ		A	1 5	36 50
Toletum Hiſpaniæ		S	0 14	39 54
Tubinga Sueviæ	*	A	0 38	48 34
Valentia Hiſpaniæ		A	0 6	39 30
Ulma Sueviæ		A	0 42	48 24
Uraniburgum Daniæ	**	A	0 50	55 55

Monitum ad Lectorem.

IN hac Geographiæ parte quæ locorum Longitudines conſiderat, quantâ incertitudine laboramus, ex diverſis Authorum Catalogis, abundè conſpicuum fiet. Nos in tanta rerum ambiguitate, maxima ex parte Keplero *adhæſimus, inſigni iſtius viri freti diligentiâ. Quæ autem ex* Bullialdi *mente poſuimus, ſimplici Aſteriſco notavimus; quæ ex noſtra, duplici.* Londinum *ab* Uraniburgo 50′ *tantum removimus; nec ab authoritate* Longomontani *adducti, ſed ab obſervationibus Eclipſium Lunarium. Hæc habui in hanc rem dicenda, nec omittere viſum eſt, ne Catalogus ex diverſis conflatus fundamentis ſuſpectus redderetur.*

A compounded Table of the Æquation of Time, which without any sensible errour may serve for this age.

	♈ A		♉ S		♊ S		♋ A		♌ A		♍ A	
	′	″	′	″	′	″	′	″	′	″	′	″
0	4	04	4	41	6	23	0	26	7	07	5	07
1	3	44	4	54	6	16	0	43	7	13	4	53
2	3	24	5	05	6	09	1	00	7	19	4	39
3	3	06	5	17	6	01	1	18	7	23	4	24
4	2	46	5	28	5	53	1	35	7	26	4	09
5	2	26	5	38	5	43	1	52	7	29	3	54
6	2	06	5	47	5	33	2	09	7	31	3	38
7	1	47	5	56	5	23	2	27	7	33	3	22
8	1	27	6	04	5	12	2	43	7	34	3	05
9	1	08	6	11	5	01	2	59	7	34	2	47
10	0	48	6	19	4	49	3	16	7	33	2	31
11	0	29	6	25	4	36	3	32	7	32	2	13
12	0	S 10	6	31	4	23	3	47	7	31	1	54
13	0	09	6	36	4	10	4	02	7	28	1	36
14	0	27	6	41	3	56	4	17	7	25	1	18
15	0	45	6	46	3	42	4	32	7	22	0	59
16	1	03	6	48	3	26	4	46	7	17	0	40
17	1	21	6	51	3	13	5	00	7	11	0	20
18	1	38	6	53	2	57	5	13	7	06	0	S 01
19	1	56	6	54	2	42	5	25	6	59	0	19
20	2	13	6	55	2	26	5	37	6	52	0	40
21	2	29	6	55	2	09	5	49	6	44	1	00
22	2	45	6	54	1	52	6	00	6	36	1	20
23	3	02	6	53	1	36	6	11	6	27	1	41
24	3	17	6	50	1	19	6	21	6	17	2	01
25	3	32	6	47	1	02	6	31	6	06	2	22
26	3	47	6	44	0	45	6	39	5	55	2	43
27	4	01	6	40	0	27	6	47	5	44	3	03
28	4	15	6	35	0	09	6	54	5	32	3	23
29	4	28	6	29	0	A 08	7	01	5	20	3	43
30	4	41	6	23	0	26	7	07	5	07	4	04

A compounded Table of the Æquation of Time, which without any sensible errour may serve for this age.

	♎ S		♏ S		♐ S		♑ S		♒ A		♓ A	
	′	″	′	″	′	″	′	″	′	″	′	″
0	4	44	12	9	11	11	0	26	10	27	11	43
1	4	24	12	18	10	58	0	00	10	41	11	35
2	4	44	12	25	10	43	0 A	26	10	53	11	25
3	5	4	12	33	10	29	0	52	11	5	11	16
4	5	24	12	40	10	13	1	19	11	17	11	5
5	5	44	12	46	9	57	1	44	11	27	10	54
6	6	4	12	51	9	39	2	9	11	37	10	42
7	6	23	12	56	9	21	2	35	11	47	10	30
8	6	43	13	0	9	2	2	59	11	54	10	17
9	7	2	13	3	8	43	3	25	12	2	10	4
10	7	20	13	5	8	23	3	50	12	8	9	51
11	7	39	13	7	8	4	4	14	12	14	9	37
12	7	58	13	8	7	43	4	38	12	19	9	22
13	8	15	13	8	7	22	5	2	12	24	9	8
14	8	33	13	7	7	0	5	25	12	27	8	52
15	8	49	13	6	6	38	5	48	12	30	8	34
16	9	7	13	4	6	15	6	10	12	32	8	20
17	9	23	13	1	5	51	6	32	12	33	8	4
18	9	38	12	57	5	27	6	53	12	34	7	47
19	9	54	12	52	5	4	7	15	12	33	7	29
20	10	9	12	47	4	40	7	35	12	32	7	12
21	10	2	12	41	4	15	7	55	12	30	6	54
22	10	37	12	34	3	50	8	14	12	28	6	36
23	10	50	12	27	3	26	8	33	12	25	6	17
24	11	3	12	18	2	59	8	51	12	22	5	59
25	11	16	12	9	2	34	9	9	12	17	5	40
26	11	27	11	58	2	9	9	27	12	12	5	21
27	11	38	11	48	1	43	9	43	12	5	5	2
28	11	49	11	37	1	17	9	58	11	58	4	43
29	11	59	11	25	0	52	10	13	11	52	4	23
30	12	9	11	11	0	26	10	27	11	43	4	4

The conversion of Æquinoctiall Degrees into parts of Houres, and the contrary.

G	H	′
1	0	4
2	0	8
3	0	12
4	0	16
5	0	20
6	0	24
7	0	28
8	0	32
9	0	36
10	0	40
11	0	44
12	0	48
13	0	52
14	0	56
15	1	0
16	1	4
17	1	8
18	1	12
19	1	16
20	1	20
21	1	24
22	1	28
23	1	32
24	1	36
25	1	40
26	1	44
27	1	48
28	1	52
29	1	56
30	2	0
31	2	4
32	2	8
33	2	12
34	2	16
35	2	20
36	2	24
37	2	28
38	2	32
39	2	36
40	2	40
41	2	44
42	2	48
43	2	52
44	2	56
45	3	0
46	3	4
47	3	8
48	3	12
49	3	16
50	3	20
51	3	24
52	3	28
53	3	32
54	3	36
55	3	40
56	3	44
57	3	48
58	3	52
59	3	56
60	4	0

G	H	′
70	4	40
80	5	20
90	6	0
100	6	40
110	7	20
120	8	0
130	8	40
140	9	20
150	10	0
160	10	40
170	11	20
180	12	0
190	12	40
200	13	20
210	14	0
220	14	40
230	15	20
240	16	0
250	16	40
260	17	20
270	18	0
280	18	40
290	19	20
300	20	0
310	20	40
320	21	20
330	22	0
340	22	40
350	23	20
360	24	0

Tabulæ Britannicæ:

THE

BRITISH TABLES,

The Second Part.

Exhibiting the apparent motions of the Fixed and Wandring Stars, and the Eclipses of the Luminaries.

THE SUNS TABLES.

The Suns mean motions.

Epochæ		Longit. ☉				Apog. ☉				♈ fix.			
		S	o	′	″	S	o	′	″	S	o	′	″
Per. Jul.		8	2	59	46	11	25	51	16	9	28	17	24
Mundi		8	8	42	39	00	07	55	27	10	09	06	02
Christi.		9	8	59	13	02	10	18	46	00	04	58	38
An. Dom.	1600	9	20	57	16	3	5	35	16	00	27	39	00
	1620	9	21	6	15	3	5	54	14	00	27	55	59
	1640	9	21	15	13	3	6	13	11	00	28	12	58
	1660	9	21	24	12	3	6	32	8	00	28	29	57
	1	11	29	45	40	00	00	00	57	00	00	00	51
	2	11	29	31	20	00	00	01	54	00	00	01	42
	3	11	29	16	59	00	00	02	51	00	00	02	33
B	4	00	00	01	48	00	00	03	47	00	00	03	24
	5	11	29	47	28	00	00	04	44	00	00	04	15
	6	11	29	33	7	00	00	05	41	00	00	05	05
	7	11	29	18	47	00	00	06	38	00	00	05	56
B	8	00	00	03	35	00	00	07	35	00	00	06	47
	9	11	29	49	15	00	00	08	32	00	00	07	38
	10	11	29	34	55	00	00	09	28	00	00	08	29
	11	11	29	20	35	00	00	10	25	00	00	09	10
B	12	00	00	05	23	00	00	11	22	00	00	10	11
	13	11	29	51	03	00	00	12	19	00	00	11	03
	14	11	29	36	43	00	00	13	16	00	00	11	54
	15	11	29	22	23	00	00	14	13	00	00	12	45
B	16	00	00	07	11	00	00	15	9	00	00	13	36
	17	11	29	52	51	00	00	16	06	00	00	14	26
	18	11	29	38	31	00	00	17	03	00	00	15	17
	19	11	29	24	10	00	00	18	00	01	00	16	08
B	20	00	00	8	59	00	00	18	58	00	00	16	59
	40	00	00	17	57	00	00	37	55	00	00	33	58
	60	00	00	26	56	00	00	56	32	00	00	50	57
	80	00	00	35	54	00	01	15	50	00	01	07	55
	100	00	00	44	53	00	01	34	47	00	01	24	54

The Suns mean motions.

Anni	*Longit.* ☉				*Apog.* ☉				*Fix.* ✶			
	S	o	′	″	S	o	′	″	S	o	′	″
100	0	0	44	53	0	1	34	47	0	1	24	54
200	0	1	29	45	0	3	9	34	0	2	49	48
300	0	2	14	38	0	4	44	22	0	4	14	42
400	0	2	59	31	0	6	19	10	0	5	39	35
500	0	3	44	23	0	7	53	57	0	7	4	29
600	0	4	29	16	0	9	28	45	0	8	29	23
700	0	5	14	9	0	11	3	32	0	9	54	17
800	0	5	59	1	0	12	38	20	0	11	19	11
900	0	6	43	54	0	14	13	7	0	12	44	5
1000	0	7	28	47	0	15	47	55	0	14	8	59
2000	0	14	57	33	1	1	35	49	0	28	17	57
3000	0	22	26	20	1	17	23	44	1	12	26	56
4000	0	29	55	6	2	3	11	39	1	26	35	54
5000	1	7	23	53	2	18	59	33	2	10	44	53

Januar.	1	0	33	18	0	0	0	5	0	0	0	4
Februa.	1	28	9	11	0	0	0	9	0	0	0	8
Mart.	2	28	42	30	0	0	0	14	0	0	0	13
April.	3	28	16	39	0	0	0	19	0	0	0	17
Maj.	4	28	49	58	0	0	0	24	0	0	0	21
Jun.	5	28	24	7	0	0	0	29	0	0	0	25
Jul.	6	28	57	25	0	0	0	34	0	0	0	29
August.	7	29	30	44	0	0	0	38	0	0	0	33
Septem.	8	29	4	54	0	0	0	43	0	0	0	38
Octob.	9	29	38	12	0	0	0	48	0	0	0	42
Novemb	10	29	12	22	0	0	0	52	0	0	0	46
Decemb.	11	29	45	40	0	0	0	57	0	0	0	51

The Suns mean motions.

D	In dieb. ☉ Longit.				☉ ap	
	S	o	′	″	′	″
1	0	0	59	8	0	(
2	0	1	58	17	0	(
3	0	2	57	25	0	(
4	0	3	56	33	0	1
5	0	4	55	42	0	1
6	0	5	54	50	0	1
7	0	6	53	58	0	1
8	0	7	53	7	0	1
9	0	8	52	15	0	2
10	0	9	51	23	0	2
11	0	10	50	32	0	2
12	0	11	49	40	0	2
13	0	12	48	48	0	2
14	0	13	47	57	0	2
15	0	14	47	5	0	2
16	0	15	46	13	0	3
17	0	16	45	22	0	3
18	0	17	44	30	0	3
19	0	18	43	38	0	3
20	0	19	42	47	0	3
21	0	20	41	55	0	3
22	0	21	41	3	0	4
23	0	22	40	12	0	4
24	0	23	39	20	0	4
25	0	24	38	28	0	4
26	0	25	37	37	0	4
27	0	26	36	45	0	4
28	0	27	35	53	0	4
29	0	28	35	2	0	5
30	0	29	34	10	0	5
31	0	0	33	18	0	5
32	0	1	32	26	0	5

H	In hor. & min. ☉ Long.		M	☉ Long.	
	′	″		′	″
1	2	28	31	1	16
2	4	56	32	1	19
3	7	23	33	1	21
4	9	51	34	1	24
5	12	19	35	1	26
6	14	47	36	1	29
7	17	15	37	1	31
8	19	43	38	1	34
9	22	11	39	1	36
10	24	38	40	1	39
11	27	6	41	1	41
12	29	34	42	1	43
13	32	2	43	1	46
14	34	30	44	1	48
15	36	58	45	1	51
16	39	26	46	1	53
17	41	53	47	1	56
18	44	21	48	1	58
19	46	49	49	2	1
20	49	17	50	2	3
21	51	45	51	2	6
22	54	13	52	2	9
23	56	40	53	2	11
24	59	8	54	2	13
25	1 1	36	55	2	16
26	1 4	4	56	2	18
27	1 6	32	57	2	20
28	1 9	0	58	2	23
29	1 11	28	59	2	25
30	1 13	55	60	2	28
′	″	‴	′	″	‴
″	‴	⁗	″	‴	⁗

The Æquations of the Suns Excentrick.

	Sig. 0				Sig. 1			
	Æq. Sub.			Logar.	Æq. Sub.			Logar.	
	°	′	″		°	′	″		
0	0	0	0	500,768	1	0	7	500,666	30
1	0	2	7	500,768	1	2	0	500,660	29
2	0	4	13	500,767	1	3	51	500,654	28
3	0	6	20	500,767	1	5	39	500,647	27
4	0	8	26	500,766	1	7	25	500,640	26
5	0	10	31	500,765	1	9	9	500,630	25
6	0	12	36	500,764	1	10	49	500,625	24
7	0	14	40	500,762	1	12	28	500,617	23
8	0	16	44	500,760	1	14	6	500,609	22
9	0	18	47	500,758	1	15	44	500,601	21
10	0	20	50	500,756	1	17	21	500,593	20
11	0	22	54	500,753	1	18	57	500,584	19
12	0	24	56	500,750	1	20	32	500,575	18
13	0	26	58	500,747	1	22	7	500,566	17
14	0	28	59	500,744	1	23	42	500,558	16
15	0	31	0	500,741	1	25	15	500,549	15
16	0	33	1	500,737	1	26	43	500,540	14
17	0	35	1	500,733	1	28	14	500,530	13
18	0	37	0	500,729	1	29	41	500,520	12
19	0	38	59	500,725	1	31	8	500,510	11
20	0	40	57	500,721	1	32	30	500,500	10
21	0	42	55	500,716	1	33	53	500,489	9
22	0	44	52	500,711	1	35	13	500,479	8
23	0	46	49	500,706	1	36	31	500,468	7
24	0	48	44	500,701	1	37	48	500,458	6
25	0	50	39	500,696	1	39	5	500,447	5
26	0	52	32	500,690	1	40	21	500,437	4
27	0	54	25	500,684	1	41	35	500,426	3
28	0	56	19	500,678	1	42	48	500,415	2
29	0	58	23	500,672	1	43	58	500,404	1
30	1	0	07	500,666	1	45	2	500,393	0
	Add.				Add.				
	Sig. 11				Sig. 10				

The Æquations of the Suns Excentrick.

	Sig. 2 Æq. Sub.			Logar.	
	o	′	″		
0	1	45	2	500,393	
1	1	46	9	500,382	
2	1	47	13	500,371	
3	1	48	14	500,359	
4	1	49	11	500,347	
5	1	50	06	500,335	
6	1	51	0	500,322	
7	1	51	52	500,311	
8	1	52	42	500,299	
9	1	53	30	500,286	
10	1	54	16	500,274	
11	1	55	1	500,261	
12	1	55	43	500,248	
13	1	56	23	500,236	
14	1	57	10	500,223	
15	1	57	44	500,210	
16	1	58	17	500,197	
17	1	58	47	500,184	
18	1	59	14	500,171	
19	1	59	46	500,158	
20	2	0	15	500,145	
21	2	0	41	500,132	
22	2	1	2	500,119	
23	2	1	21	500,106	
24	2	1	37	500,093	
25	2	1	53	500,080	
26	2	2	4	500,067	
27	2	2	12	500,054	
28	2	2	26	500,041	
29	2	2	32	500,028	
30	2	2	39	500,014	

Add. Sig. 9

	Sig. 3 Æq. Sub.			Logar.	
	o	′	″		
0	2	2	39	500,014	30
1	2	2	41	500,000	29
2	2	2	39	499,986	28
3	2	2	34	499,973	27
4	2	2	28	499,959	26
5	2	2	20	499,946	25
6	2	2	10	499,933	24
7	2	2	00	499,920	23
8	2	1	46	499,907	22
9	2	1	30	499,894	21
10	2	1	13	499,881	20
11	2	0	51	499,868	19
12	2	0	23	499,854	18
13	1	59	54	499,841	17
14	1	59	34	499,828	16
15	1	59	5	499,814	15
16	1	58	35	499,801	14
17	1	58	0	499,788	13
18	1	57	24	499,775	12
19	1	56	44	499,762	11
20	1	56	2	499,749	10
21	1	55	16	499,736	9
22	1	54	32	499,723	8
23	1	53	45	499,710	7
24	1	52	58	499,698	6
25	1	52	8	499,685	5
26	1	51	16	499,672	4
27	1	50	23	499,660	3
28	1	49	26	499,648	2
29	1	48	26	499,636	1
30	1	47	24	499,624	0

Add. Sig. 8

The Æquations of the Suns Excentrick.

Sig. 4					Sig. 5				
Æq. Sub.			Logar.		Æq. Sub.			Logar.	
°	′	″			°	′	″		
0	1	47	24	499,624	1	2	34	499,330	30
1	1	46	19	499,612	1	0	36	499,323	29
2	1	45	14	499,601	0	58	39	499,316	28
3	1	44	6	499,589	0	56	41	499,310	27
4	1	42	54	499,577	0	54	43	499,304	26
5	1	41	42	499,565	0	52	44	499,298	25
6	1	40	31	499,554	0	50	45	499,292	24
7	1	39	14	499,543	0	48	46	499,286	23
8	1	37	56	499,532	0	46	47	499,281	22
9	1	36	37	499,521	0	44	46	499,276	21
10	1	35	16	499,510	0	42	45	499,271	20
11	1	33	52	499,500	0	40	43	499,266	19
12	1	32	26	499,490	0	38	40	499,261	18
13	1	30	59	499,480	0	36	35	499,257	17
14	1	29	30	499,470	0	34	28	499,253	16
15	1	28	11	499,461	0	32	20	499,249	15
16	1	26	30	499,451	0	30	12	499,245	14
17	1	24	57	499,441	0	28	3	499,242	13
18	1	23	22	499,432	0	25	55	499,239	12
19	1	21	47	499,422	0	23	47	499,236	11
20	1	20	9	499,412	0	21	38	499,233	10
21	1	18	30	499,403	0	19	30	499,230	9
22	1	16	51	499,394	0	17	21	499,228	8
23	1	15	10	499,385	0	15	11	499,226	7
24	1	13	27	499,377	0	13	1	499,224	6
25	1	11	44	499,369	0	10	51	499,223	5
26	1	10	0	499,361	0	8	41	499,221	4
27	1	8	14	499,353	0	6	31	499,220	3
28	1	6	22	499,345	0	4	21	499,219	2
29	1	4	29	499,337	0	2	11	499,218	1
30	1	2	34	499,330	0	0	0	499,218	0
Add.					Add.				
Sig. 7					Sig. 6				

A Table of the Zodiacks obliquity

Anni	*Obliq. Zod.* °	′	″	*Diff.* ′	″	*Anni*
0	23	31	7			3600
				0	5	
60	23	31	12			3540
				0	12	
120	23	31	24			3480
				0	17	
180	23	31	41			3420
				0	23	
240	23	32	4			3360
				0	30	
300	23	32	34			3300
				0	37	
360	23	33	11			3240
				0	43	
420	23	33	54			3180
				0	48	
480	23	34	42			3120
				0	54	
540	23	35	36			3060
				0	58	
600	23	36	34			3000
				1	1	
660	23	37	35			2940
				1	3	
720	23	38	38			2880
				1	5	
780	23	39	43			2820
				1	8	
840	23	40	51			2760
				1	9	
900	23	42	0			2700
				1	9	
960	23	43	9			2640
				1	8	
1020	23	44	17			2580
				1	5	
1080	23	45	22			2520
				1	3	
1140	23	46	25			2460
				1	1	
1200	23	47	26			2400
				0	58	
1260	23	48	24			2340
				0	54	
1320	23	49	18			2280
				0	48	
1380	23	50	6			2220
				0	43	
1440	23	50	49			2160
				0	37	
1500	23	51	26			2100
				0	30	
1560	23	51	56			2040
				0	23	
1620	23	52	19			1980
				0	17	
1680	23	52	36			1920
				0	12	
1740	23	52	48			1860
				0	5	
1800	23	52	53			1800

THE TABLES OF SATURN.

Saturns mean motions.

Epoche		Longit. ♄				Aphel. ♄				Nod. ♄			
		S	o	′	″	S	o	′	″	S	o	′	″
Per. Julian.		0	11	35	7	2	5	47	47	2	5	1	22
Mundi		11	28	47	44	3	0	1	29	2	10	31	34
Christi		2	13	7	50	7	5	15	26	3	8	59	19
An. Dom.	1600	6	28	26	22	8	25	59	50	3	20	30	50
	1620	3	3	7	51	8	26	37	53	3	20	39	28
	1640	11	7	49	20	8	27	15	57	3	20	48	7
	1660	7	12	30	4	8	27	53	0	3	20	56	45
	1	0	12	13	34	0	0	1	54	0	0	0	26
	2	0	24	27	9	0	0	3	48	0	0	0	52
	3	1	6	40	43	0	0	5	42	0	0	1	18
B	4	1	18	56	18	0	0	7	37	0	0	1	44
	5	2	1	9	52	0	0	9	31	0	0	2	10
	6	2	13	23	26	0	0	11	25	0	0	2	35
	7	2	25	37	1	0	0	13	19	0	0	3	1
B	8	3	7	52	36	0	0	15	13	0	0	3	27
	9	3	20	6	10	0	0	17	7	0	0	3	53
	10	4	2	19	44	0	0	19	1	0	0	4	19
	11	4	14	33	18	0	0	20	56	0	0	4	45
B	12	4	26	48	53	0	0	22	50	0	0	5	11
	13	5	9	2	28	0	0	24	44	0	0	5	37
	14	5	21	16	2	0	0	26	38	0	0	6	3
	15	6	3	29	36	0	0	28	32	0	0	6	29
B	16	6	15	45	11	0	0	30	26	0	0	6	55
	17	6	27	58	45	0	0	32	21	0	0	7	21
	18	7	10	12	20	0	0	34	15	0	0	7	46
	19	7	22	25	54	0	0	36	9	0	0	8	12
B	20	8	4	41	29	0	0	38	3	0	0	8	38
	40	4	9	22	58	0	1	16	7	0	0	17	17
	60	0	14	4	27	0	1	54	10	0	0	25	56
	80	8	18	45	55	0	2	32	13	0	0	34	34
	100	4	23	27	24	0	3	10	16	0	0	43	13

Saturns mean motions.

Anni	Longit. ♄				Aphel. ♄				Nod. ♄			
	S	o	′	″	S	o	′	″	S	o	′	″
100	4	23	27	24	0	3	10	16	0	0	43	13
200	9	16	54	49	0	6	20	33	0	1	26	26
300	2	20	22	14	0	9	30	49	0	2	9	40
400	7	3	49	38	0	12	41	6	0	2	52	53
500	11	27	17	3	0	15	51	22	0	3	36	6
600	4	20	44	27	0	19	1	39	0	4	19	19
700	9	14	11	52	0	22	11	55	0	5	2	32
800	2	7	39	16	0	25	22	12	0	5	45	46
900	7	1	6	41	0	28	32	28	0	6	28	59
1000	11	24	34	5	1	1	42	45	0	7	12	12
2000	11	19	8	11	2	3	25	30	0	14	24	24
3000	11	13	42	16	3	5	8	15	0	21	36	36
4000	11	8	16	22	4	6	51	0	0	28	48	48
5000	11	2	50	27	5	8	33	45	1	6	1	0

Januar.	0	1	2	18	0	0	0	10	0	0	0	2
Februa.	0	1	58	35	0	0	0	19	0	0	0	5
Mart.	0	3	0	53	0	0	0	28	0	0	0	7
April.	0	4	1	10	0	0	0	37	0	0	0	9
Maj.	0	5	3	29	0	0	0	48	0	0	0	12
Jun.	0	6	3	46	0	0	0	56	0	0	0	14
Jul.	0	7	6	4	0	0	1	6	0	0	0	16
August.	0	8	8	23	0	0	1	17	0	0	0	18
Septemb	0	9	8	40	0	0	1	25	0	0	0	20
Octob.	0	10	10	58	0	0	1	35	0	0	0	22
Novem.	0	11	11	16	0	0	1	45	0	0	0	24
Decemb	0	12	13	34	0	0	1	54	0	0	0	26

Saturns mean motions.

D	In dieb. Longit. ♄		Ap. ♄		Nod ♄	
	°	′ ″	′	″	′	″
1	0	2 1	0	0	0	0
2	0	4 1	0	0	0	0
3	0	6 2	0	1	0	0
4	0	8 2	0	1	0	0
5	0	10 3	0	2	0	0
6	0	12 4	0	2	0	0
7	0	14 4	0	2	0	0
8	0	16 5	0	3	0	0
9	0	18 5	0	3	0	1
10	0	20 6	0	3	0	1
11	0	22 7	0	4	0	1
12	0	24 7	0	4	0	1
13	0	26 8	0	4	0	1
14	0	28 8	0	5	0	1
15	0	30 9	0	5	0	1
16	0	32 9	0	5	0	1
17	0	34 10	0	6	0	1
18	0	36 11	0	6	0	1
19	0	38 11	0	6	0	1
20	0	40 12	0	7	0	1
21	0	42 12	0	7	0	1
22	0	44 13	0	7	0	1
23	0	46 14	0	8	0	1
24	0	48 14	0	8	0	2
25	0	50 15	0	8	0	2
26	0	52 15	0	9	0	2
27	0	54 16	0	9	0	2
28	0	56 17	0	9	0	2
29	0	58 17	0	10	0	2
30	1	0 18	0	10	0	2
31	1	2 18	0	10	0	2
32	1	4 19	0	11	0	2

H	In hor. & min. Lon ♄		M	Lon. ♄	
	′	″		′	″
1	0	5	31	0	3
2	0	10	32	0	3
3	0	15	33	0	3
4	0	20	34	0	3
5	0	25	35	0	3
6	0	30	36	0	3
7	0	35	37	0	3
8	0	40	38	0	3
9	0	45	39	0	3
10	0	50	40	0	3
11	0	55	41	0	3
12	1	0	42	0	4
13	1	5	43	0	4
14	1	10	44	0	4
15	1	15	45	0	4
16	1	20	46	0	4
17	1	25	47	0	4
18	1	30	48	0	4
19	1	35	49	0	4
20	1	40	50	0	4
21	1	45	51	0	4
22	1	51	52	0	4
23	1	56	53	0	4
24	2	1	54	0	5
25	2	6	55	0	5
26	2	11	56	0	5
27	2	16	57	0	5
28	2	21	58	0	5
29	2	26	59	0	5
30	2	31	60	0	5
′	″	‴	′	′	″
″	‴	⁗	″	″	‴

The Æquations of *Saturns* Excentrick.

Sig. 0					Sig. 1				
Æq. Sub.			Logar.		Æq. Sub.			Logar.	
°	′	″			°	′	″		
0	0	0	0	600,401	3	6	17	600,116	30
1	0	6	33	600,401	3	12	1	600,097	29
2	0	12	56	600,400	3	17	43	600,077	28
3	0	19	28	600,398	3	23	23	600,057	27
4	0	25	48	600,395	3	28	58	600,036	26
5	0	32	11	600,392	3	34	29	600,015	25
6	0	38	47	600,388	3	39	56	599,993	24
7	0	45	32	600,384	3	45	21	599,970	23
8	0	51	37	600,379	3	50	43	599,947	22
9	0	57	50	600,374	3	56	2	599,923	21
10	1	4	8	600,368	4	1	16	599,899	20
11	1	10	27	600,362	4	6	26	599,874	19
12	1	16	46	600,355	4	11	32	599,848	18
13	1	23	5	600,348	4	16	34	599,821	17
14	1	29	25	600,340	4	21	33	599,793	16
15	1	35	44	600,331	4	26	29	599,764	15
16	1	42	1	600,321	4	31	19	599,735	14
17	1	48	18	600,311	4	36	4	599,705	13
18	1	54	34	600,300	4	40	45	599,675	12
19	2	0	44	600,288	4	45	22	599,645	11
20	2	6	54	600,276	4	50	56	599,615	10
21	2	13	2	600,263	4	54	25	599,586	9
22	2	19	8	600,249	4	58	49	599,556	8
23	2	25	7	600,234	5	3	8	599,526	7
24	2	31	2	600,219	5	7	23	599,495	6
25	2	36	59	600,203	5	11	34	599,464	5
26	2	42	55	600,187	5	15	39	599,432	4
27	2	48	51	600,170	5	19	39	599,400	3
28	2	54	43	600,153	5	23	34	599,367	2
29	3	0	32	600,135	5	27	24	599,334	1
30	3	6	17	600,116	5	31	12	599,300	0
	Add.				Add.				
	Sig. 11				Sig. 10				

The Æquations of *Saturns* Excentrick.

Sig. 2					Sig. 3				
Æq. Sub.			Logar.		Æq. Sub.			Logar.	
o	′	″			o	′	″		
0	5	31	12	599,300	6	36	13	598,108	30
1	5	34	47	599,266	6	36	40	598,064	29
2	5	38	19	599,231	6	37	0	598,020	28
3	5	41	48	599,196	6	37	10	597,976	27
4	5	45	12	599,161	6	37	9	597,932	26
5	5	48	29	599,125	6	37	7	597,888	25
6	5	51	39	599,089	6	37	5	597,844	24
7	5	54	43	599,052	6	36	40	597,800	23
8	5	57	41	599,015	6	36	10	597,756	22
9	6	0	32	598,978	6	35	34	597,712	21
10	6	3	18	598,940	6	34	56	597,668	20
11	6	5	58	598,902	6	34	15	597,624	19
12	6	8	32	598,863	6	33	25	597,580	18
13	6	11	1	598,824	6	32	29	597,536	17
14	6	13	23	598,784	6	31	22	597,492	16
15	6	15	37	598,744	6	30	4	597,448	15
16	6	17	46	598,704	6	28	38	597,404	14
17	6	19	50	598,663	6	27	4	597 360	13
18	6	21	48	598,622	6	25	22	597,316	12
19	6	23	40	598,580	6	23	34	598,272	11
20	6	25	24	598,538	6	21	40	597,229	10
21	6	26	59	598,496	6	19	39	597,186	9
22	6	28	28	598,454	6	17	30	597,143	8
23	6	29	50	598,411	6	15	12	597,100	7
24	6	31	6	598,368	6	12	46	597,057	6
25	6	32	15	598,325	6	10	13	597,014	5
26	6	33	15	598,282	6	7	33	596,972	4
27	6	34	10	598,239	6	4	47	596,930	3
28	6	34	58	598,196	6	1	53	596,888	2
29	6	35	39	598,152	5	58	53	596,846	1
30	6	36	13	598,108	5	55	48	596,805	0
Add.					Add.				
Sig. 9					Sig. 8				

The Æquations of *Saturns* Excentrick.

Sig. 4

Æq.	Sub.			Logar.
	°	′	″	
0	5	55	48	596,805
1	5	52	36	596,764
2	5	49	17	596,723
3	5	45	51	596,681
4	5	42	18	596,641
5	5	38	37	596,601
6	5	34	48	596,562
7	5	30	52	596,523
8	5	26	49	596,485
9	5	22	41	596,447
10	5	18	25	596,409
11	5	14	1	596,372
12	5	9	29	596,335
13	5	4	51	596,299
14	5	0	8	596,26.
15	4	55	19	596,228
16	4	50	23	596,194
17	4	45	19	596,16.
18	4	40	9	596,127
19	4	34	54	596,094
20	4	29	34	596,062
21	4	24	7	596,030
22	4	18	33	595,999
23	4	12	52	595,969
24	4	7	5	595,939
25	4	1	16	595,910
26	3	55	25	595,881
27	3	49	32	595,853
28	3	43	31	595,826
29	3	37	22	595,800
30	3	31	3	595,774

Add.

Sig. 7

Sig. 5

Æq.	Sub.			Logar.	
	°	′	″		
3	31	3		595,774	30
3	24	42		595,749	29
3	18	19		595,725	28
3	11	55		595,702	27
3	5	23		595,679	26
2	58	46		595,657	25
2	52	4		595,636	24
2	45	21		595,616	23
2	38	35		595,596	22
2	31	47		595,577	21
2	24	57		595,559	20
2	18	6		595,542	19
2	11	16		595,525	18
2	4	18		595,509	17
1	57	17		595,494	16
1	50	10		595,480	15
1	43	0		595,467	14
1	35	47		595,455	13
1	28	32		595,444	12
1	21	16		595,434	11
1	13	59		595,424	10
1	6	40		595,415	9
0	59	20		595,407	8
0	51	59		595,400	7
0	44	37		595,394	6
0	37	15		595,389	5
0	29	52		595,385	4
0	22	27		595,382	3
0	15	0		595,380	2
0	7	31		595,379	1
0	0	0		595,379	0

Add.

Sig. 6

Saturns Table of Latitude

Tang. Inclin. max. 8,64009

	Sig. 0 6			Sig. 1 7			Sig. 2 8			
	Red. ſub		*curt*	*Red. ſub*		*curt*	*Red ſub*		*curt*	
	′	″		′	″		′	″		
0	0	0	000	1	27	011	1	27	032	30
1	0	4	0	1	29	012	1	25	033	29
2	0	8	0	1	30	012	1	23	033	28
3	0	11	0	1	32	013	1	21	034	27
4	0	15	0	1	34	014	1	19	034	26
5	0	18	0	1	35	014	1	17	035	25
6	0	22	0	1	36	015	1	15	036	24
7	0	25	1	1	37	016	1	13	036	23
8	0	28	1	1	38	017	1	11	037	22
9	0	32	1	1	38	017	1	8	037	21
10	0	35	1	1	39	018	1	5	038	20
11	0	38	2	1	39	018	1	3	038	19
12	0	42	2	1	40	019	0	0	038	18
13	0	45	2	1	40	020	0	57	039	17
14	0	48	3	1	41	021	0	54	039	16
15	0	51	3	1	41	021	0	51	040	15
16	0	54	3	1	41	022	0	48	040	14
17	0	57	4	1	40	023	0	45	040	13
18	1	0	4	1	40	023	0	42	041	12
19	1	3	4	1	39	024	0	38	041	11
20	1	5	5	1	39	025	0	35	041	10
21	1	8	5	1	38	026	0	32	041	9
22	1	11	5	1	38	026	0	28	042	8
23	1	13	6	1	37	027	0	25	042	7
24	1	15	6	1	36	028	0	22	042	6
25	1	17	7	1	35	028	0	18	042	5
26	1	19	8	1	34	029	0	15	042	4
27	1	21	9	1	32	030	0	11	042	3
28	1	23	010	1	30	031	0	8	042	2
29	1	25	010	1	29	031	0	4	042	1
30	1	27	011	1	27	032	0	0	042	0
	Add			*Add.*			*Add.*			
	Sig. 11 5			Sig. 10 4			Sig. 9 3			

THE TABLES OF JUPITER.

Jupiters mean motions.

Epochæ		Longit. ♃				Aphel. ♃				Nod. ♃			
		S	o	′	″	S	o	′	″	S	o	′	″
Per. Julian.		11	28	46	10	1	1	46	45	1	25	26	28
Mundi		5	6	8	40	1	20	41	12	2	0	39	20
Christi		5	29	54	57	4	28	25	26	2	27	40	38
An. Dom.	1600	5	10	48	20	6	8	1	24	3	8	37	23
	1620	1	18	4	0	6	8	31	6	3	8	45	36
	1640	9	25	19	40	6	9	0	48	3	8	53	48
	1660	6	2	35	20	6	9	30	30	3	9	2	0
	1	1	0	20	32	0	0	1	29	0	0	0	25
	2	2	0	41	4	0	0	2	58	0	0	0	49
	3	3	1	1	36	0	0	4	27	0	0	1	14
B	4	4	1	27	8	0	0	5	56	0	0	1	38
	5	5	1	47	40	0	0	7	25	0	0	2	3
	6	6	2	8	12	0	0	8	54	0	0	2	28
	7	7	2	28	44	0	0	10	24	0	0	2	52
B	8	8	2	54	16	0	0	11	53	0	0	3	17
	9	9	3	14	48	0	0	13	22	0	0	3	42
	10	10	3	35	20	0	0	14	51	0	0	4	6
	11	11	3	55	53	0	0	16	20	0	0	4	31
B	12	0	4	21	24	0	0	17	49	0	0	4	55
	13	1	4	41	56	0	0	19	18	0	0	5	20
	14	2	5	2	28	0	0	20	47	0	0	5	45
B	15	3	5	23	1	0	0	22	16	0	0	6	9
	16	4	5	48	32	0	0	23	46	0	0	6	34
	17	5	6	9	4	0	0	25	15	0	0	6	59
	18	6	6	29	37	0	0	26	44	0	0	7	23
B	19	7	6	50	9	0	0	28	13	0	0	7	48
	20	8	7	15	40	0	0	29	42	0	0	8	13
	40	4	14	31	20	0	0	59	24	0	0	16	25
	60	0	21	47	0	0	1	29	6	0	0	24	38
	80	8	29	2	40	0	1	58	48	0	0	32	50
	100	5	6	18	20	0	2	28	30	0	0	41	2

Iupiters mean motions.

Anni	Longit. ♃				Aphel. ♃				Noa. ♃			
	S	o	′	″	S	o	′	″	S	o	′	″
100	5	6	18	20	0	2	28	30	0	0	41	3
200	10	12	36	40	0	4	57	0	0	1	22	6
300	3	18	55	1	0	7	25	30	0	2	3	8
400	8	25	13	21	0	9	53	59	0	2	44	11
500	2	1	31	41	0	12	22	29	0	3	25	14
600	7	7	50	1	0	14	50	59	0	4	6	17
700	0	14	8	22	0	17	19	29	0	4	47	19
800	5	20	26	42	0	19	47	59	0	5	28	22
900	10	26	45	2	0	22	16	29	0	6	9	25
1000	4	3	3	22	0	24	44	59	0	6	50	28
2000	8	6	6	45	1	19	29	57	0	13	40	56
3000	0	9	10	7	2	14	14	56	0	20	31	23
4000	4	12	13	30	2	8	59	54	0	27	21	51
5000	8	15	16	52	4	3	44	53	1	4	12	18

Ianuar.	0	2	34	37	0	0	0	7	0	0	0	2
Februa.	0	4	54	17	0	0	0	15	0	0	0	4
Mart.	0	7	28	54	0	0	0	22	0	0	0	6
April.	0	9	58	32	0	0	0	29	0	0	0	8
Maj.	0	12	33	9	0	0	0	37	0	0	0	10
Iun.	0	15	2	47	0	0	0	44	0	0	0	12
Iul.	0	17	37	24	0	0	0	52	0	0	0	14
Auguſt.	0	20	12	2	0	0	1	0	0	0	0	16
Septemb	0	22	41	40	0	0	1	7	0	0	0	18
Octob.	0	25	16	17	0	0	1	15	0	0	0	20
Novem.	0	27	45	55	0	0	1	22	0	0	0	22
Decemb	1	0	20	32	0	0	1	29	0	0	0	25

Jupiters mean motions.

In dieb.

D	Longit. ♃			ap. ♃		nod ♃	
	°	′	″	′	″	′	″
1	0	4	59	0	0	0	0
2	0	9	58	0	0	0	0
3	0	14	58	0	0	0	0
4	0	19	57	0	1	0	0
5	0	24	56	0	1	0	0
6	0	29	55	0	1	0	0
7	0	34	55	0	1	0	0
8	0	39	54	0	1	0	0
9	0	44	53	0	2	0	0
10	0	49	52	0	2	0	1
11	0	54	52	0	2	0	1
12	0	59	51	0	2	0	1
13	1	4	50	0	3	0	1
14	1	9	49	0	3	0	1
15	1	14	49	0	3	0	1
16	1	19	48	0	3	0	1
17	1	24	47	0	4	0	1
18	1	29	46	0	4	0	1
19	1	34	46	0	4	0	1
20	1	39	45	0	4	0	1
21	1	44	44	0	5	0	1
22	1	49	43	0	5	0	1
23	1	54	43	0	5	0	1
24	1	59	42	0	5	0	1
25	2	4	41	0	6	0	2
26	2	9	40	0	6	0	2
27	2	14	40	0	6	0	2
28	2	19	39	0	6	0	2
29	2	24	38	0	7	0	2
30	2	29	38	0	7	0	2
31	2	34	37	0	7	0	2
32	2	39	36	0	7	0	2

In hor. & min.

H	Long		M	Long	
	′	″		′	″
1	0	12	31	0	6
2	0	25	32	0	7
3	0	37	33	0	7
4	0	50	34	0	7
5	1	2	35	0	7
6	1	15	36	0	8
7	1	27	37	0	8
8	1	38	38	0	8
9	1	52	39	0	8
10	2	5	40	0	8
11	2	17	41	0	9
12	2	30	42	0	9
13	2	42	43	0	9
14	2	55	44	0	9
15	3	7	45	0	9
16	3	20	46	0	10
17	3	32	47	0	10
18	3	44	48	0	10
19	3	57	49	0	10
20	4	9	50	0	10
21	4	22	51	0	11
22	4	34	52	0	11
23	4	47	53	0	11
24	4	59	54	0	11
25	5	12	55	0	11
26	5	24	56	0	12
27	5	37	57	0	12
28	5	49	58	0	12
29	6	2	59	0	12
30	6	14	60	0	12

The Æquations of Jupiters Excentrick.

Sig. 0

Æq. Sub.			Logar.	
°	′	″		
0	0	0	573,870	
1	0	5	30	573,870	
2	0	11	0	573,869	
3	0	16	31	573,867	
4	0	22	0	573,865	
5	0	27	29	573,862	
6	0	32	57	573,859	
7	0	38	24	573,855	
8	0	43	52	573,851	
9	0	49	18	573,847	
10	0	54	42	573,842	
11	1	0	5	573,836	
12	1	5	28	573,830	
13	1	10	50	573,823	
14	1	16	11	573,816	
15	1	21	31	573,808	
16	1	26	49	573,799	
17	1	32	6	573,790	
18	1	37	21	573,780	
19	1	42	34	573 770	
20	1	47	46	573,759	
21	1	52	55	573,748	
22	1	58	4	573,736	
23	2	3	13	573,724	
24	2	2	21	573,711	
25	2	13	26	573,698	
26	2	18	29	573,684	
27	2	23	28	573,670	
28	2	28	26	573 665	
29	2	33	23	573,640	
30	2	38	20	573,624	

Add.

Sig. 11

Sig. 1

Æq Sub.			Logar.	
°	′	″		
2	38	20	573,624	30
2	43	15	573,608	29
2	48	4	573,591	28
2	52	49	573,574	27
2	57	32	573,556	26
3	2	9	573,538	25
3	6	45	573,519	24
3	11	22	573,500	23
3	15	54	573,480	22
3	20	22	573,460	21
3	24	47	573,440	20
3	29	6	573,419	19
3	33	23	573,397	18
3	37	38	573,374	17
3	41	50	573,351	16
3	45	59	573,327	15
3	50	6	573,303	14
3	54	7	573,278	13
3	58	3	573,253	12
4	1	54	573,227	11
4	5	41	573,201	10
4	9	24	573,175	9
4	13	3	573,149	8
4	16	50	573,122	7
4	20	25	573,095	6
4	23	56	573,068	5
4	27	23	573,040	4
4	30	45	573,012	3
4	34	2	572,984	2
4	37	16	572,955	1
4	40	23	572,926	0

Add.

Sig. 10

The Æquations of *Jupiters* Excentrick.

	Sig. 2				Sig. 2			
	Æq. Sub.			*Logar.*	*Æq. Sub.*			*Logar.*
	°	′	″		°	′	″	
0	4	40	23	572,926	5	33	38	571,912	30
1	4	43	23	572,897	5	33	46	571,875	29
2	4	46	17	572,867	5	33	57	571,838	28
3	4	49	6	572,837	5	34	00	571,801	27
4	4	51	48	572,806	5	33	59	571,764	26
5	4	54	27	572,775	5	33	49	571,727	25
6	4	57	1	572,743	5	33	40	571,690	24
7	4	59	34	572,711	5	33	22	571,653	23
8	5	2	4	572,678	5	32	59	571,616	22
9	5	4	30	572,645	5	33	31	571,580	21
10	5	6	50	572,612	5	31	58	571,543	20
11	5	9	5	572,578	5	31	21	571,506	19
12	5	11	14	572,545	5	30	24	571,469	18
13	5	13	18	572,512	5	29	22	571,432	17
14	5	15	15	572,478	5	28	15	571,395	16
15	5	17	06	572,444	5	27	8	571,358	15
16	5	18	49	572,410	5	25	54	571,321	14
17	5	20	27	572,376	5	24	32	521,285	13
18	5	22	2	572,342	5	23	2	571,248	12
19	5	23	34	572,307	5	21	29	571,212	11
20	5	24	58	572,272	5	19	49	571,176	10
21	5	26	20	572,237	5	18	3	571,139	9
22	5	27	33	572,202	5	16	13	571,103	8
23	5	28	38	572,167	5	14	16	571,067	7
24	5	29	36	572,131	5	12	13	571,031	6
25	5	30	28	572,095	5	10	4	570,995	5
26	5	31	15	572,059	5	7	50	570,960	4
27	5	31	56	572,023	5	5	30	570,924	3
28	5	32	32	571,986	5	3	4	570,889	2
29	5	33	2	571,949	5	0	32	570,854	1
30	5	33	28	571,912	4	57	50	570,820	0
	Add.				*Add.*			
	Sig. 9				Sig. 8			

The Æquations of *Jupiters* Excentrick.

	Sig. 4 Æq. Sub. °	′	″	Logar.
0	4	57	50	570,820
1	4	55	4	570,786
2	4	52	13	570,752
3	4	49	16	570,719
4	4	46	12	570,686
5	4	43	2	570,653
6	4	39	45	570,621
7	4	36	22	570,589
8	4	32	54	570,558
9	4	29	20	570,527
10	4	25	41	570,496
11	4	21	55	570,466
12	4	18	5	570,436
13	4	14	11	570,406
14	4	10	13	570,377
15	4	6	11	570,348
16	4	2	5	570,319
17	3	57	54	570,291
18	3	53	37	570,263
19	3	49	14	570,226
20	3	44	44	570,209
21	3	40	10	570,183
22	3	35	31	570,157
23	3	30	48	570,132
24	3	26	1	570,107
25	3	21	10	570,083
26	3	16	16	570,059
27	3	11	18	570,035
28	3	6	15	570,012
29	3	1	8	569,989
30	2	56	0	569,967

Add. Sig. 7

	Sig. 5 Æq. Sub. °	′	″	Logar.	
2	56	0	569,967		30
2	50	45	569,946		29
2	45	24	569,926		28
2	40	0	569,907		27
2	34	33	569,889		26
2	29	3	569,871		25
2	23	30	569,854		24
2	17	56	569,837		23
2	12	17	569,821		22
2	6	34	569,806		21
2	0	49	569,792		20
1	55	2	569,778		19
1	49	11	569,765		18
1	43	20	569,753		17
1	37	27	569,741		16
1	31	32	569,730		15
1	25	34	569,720		14
1	19	35	569,710		13
1	13	34	569,701		12
1	7	31	569,693		11
1	1	28	569,685		10
0	55	25	569,678		9
0	49	20	569,672		8
0	43	12	569,666		7
0	37	2	569,661		6
0	30	52	569,657		5
0	24	42	569,654		4
0	18	32	569,651		
0	12	22	569,649		
0	6	11	569,648		1
0	0	0	569,648		0

Add. Sig. 6

A Table of *Jupiters* Latitude.

Tang. Inclinat. max. 837656

	Sig. 0 6			Sig. 1 7			Sig. 2 8			
	Red. sub		*curt*	*Red. sub*		*curt*	*Red. sub*		*curt*	
	′	″		′	″		′	″		
0	0	0	000	0	25	003	0	25	009	30
1	0	2	0	0	26	3	0	25	009	29
2	0	3	0	0	26	3	0	24	009	28
3	0	4	0	0	27	3	0	24	009	27
4	0	5	0	0	27	4	0	23	009	26
5	0	6	0	0	27	4	0	23	009	25
6	0	7	0	0	28	4	0	22	010	24
7	0	8	0	0	28	4	0	21	010	23
8	0	9	0	0	28	4	0	21	010	22
9	0	10	0	0	29	5	0	20	010	21
10	0	11	0	0	29	5	0	19	010	20
11	0	12	0	0	29	5	0	19	010	19
12	0	13	1	0	29	5	0	18	010	18
13	0	14	1	0	29	5	0	17	011	17
14	0	15	1	0	29	6	0	16	011	16
15	0	15	1	0	30	6	0	15	011	15
16	0	16	1	0	29	6	0	15	011	14
17	0	17	1	0	29	6	0	14	011	13
18	0	18	1	0	29	6	0	13	011	12
19	0	19	1	0	29	7	0	12	011	11
20	0	19	1	0	29	7	0	11	011	10
21	0	20	2	0	29	7	0	10	011	9
22	0	21	2	0	28	7	0	9	011	8
23	0	21	2	0	28	7	0	8	011	7
24	0	22	2	0	28	8	0	7	011	6
25	0	23	2	0	27	8	0	6	011	5
26	0	23	2	0	27	8	0	5	012	4
27	0	24	2	0	27	8	0	4	012	3
28	0	24	3	0	26	8	0	3	012	2
29	0	25	3	0	26	8	0	2	012	1
30	0	25	003	0	25	009	0	0	012	0
	Add.			*Add.*			*Add*			
	Sig. 11	5		Sig. 10	4		Sig. 9	3		

THE TABLES OF MARS.

The mean motions of *Mars*.

Epochæ		Longit. ♂				Aphel. ♂				Nod. ♂			
		S	o	′	″	S	o	′	″	S	o	′	″
Per. Ju.		1	23	53	12	0	11	14	43	10	22	10	46
Mundi		4	16	10	9	1	27	56	15	11	02	24	55
Christi.		1	10	42	58	3	23	58	15	00	25	18	21
An. Dom.	1600	10	7	16	34	4	28	59	54	01	16	44	32
	1620	5	25	36	29	4	29	26	10	01	17	0	37
	1640	1	13	56	24	4	29	52	26	01	17	16	41
	1660	9	2	16	19	5	0	12	42	01	17	32	47
	1	6	11	17	8	00	00	01	19	00	00	00	48
	2	0	22	34	16	00	00	02	38	00	00	01	36
	3	7	3	51	24	00	00	03	56	00	00	02	25
B	4	1	15	39	59	00	00	05	15	00	00	03	13
	5	7	26	57	6	00	00	06	34	00	00	04	01
	6	2	8	14	15	00	00	07	53	00	00	04	49
	7	8	19	31	22	00	00	09	11	00	00	05	37
B	8	3	1	19	58	00	00	10	30	00	00	06	26
	9	9	12	37	6	00	00	11	50	00	00	07	14
	10	3	23	54	14	00	00	13	8	00	00	08	2
	11	10	5	11	22	00	00	14	26	00	00	08	50
B	12	4	16	59	57	00	00	15	45	00	00	09	38
	13	10	28	17	5	00	00	17	4	00	00	10	27
	14	5	9	34	13	00	00	18	23	00	00	11	16
	15	11	20	51	21	00	00	19	41	00	00	12	4
B	16	6	2	39	56	00	00	21	1	00	00	12	52
	17	0	13	57	4	00	00	22	20	00	00	13	40
	18	6	25	14	12	00	00	23	39	00	00	14	29
	19	1	6	31	20	00	00	24	57	00	00	15	17
B	20	7	18	19	55	00	00	26	16	00	00	16	05
	40	03	06	39	50	00	00	52	32	00	00	32	09
	60	10	24	59	46	00	01	18	48	00	00	48	14
	80	6	13	19	40	00	01	45	05	00	01	04	19
	100	2	1	39	36	00	02	11	21	00	01	20	23

The mean motions of *Mars*.

Anni	Longit. ♂				Aphel. ♂				Nod. ♂			
	S	o	′	″	S	o	′	″	S	o	′	″
100	2	1	39	36	0	2	11	21	0	1	10	23
200	4	3	19	12	0	4	22	42	0	2	40	46
300	6	4	58	48	0	6	34	4	0	4	1	10
400	8	6	38	24	0	8	45	25	0	5	21	33
500	10	8	18	0	0	10	56	46	0	6	41	56
600	0	9	57	36	0	13	8	7	0	8	2	19
700	2	11	37	12	0	15	19	28	0	9	22	42
800	4	13	16	48	0	17	30	49	0	10	43	5
900	6	14	56	24	0	19	42	11	0	12	3	29
1000	8	16	36	0	0	21	53	32	0	13	23	52
2000	5	3	12	1	1	13	47	4	0	26	47	43
3000	1	19	48	1	2	5	40	35	1	10	11	35
4000	10	6	24	2	2	27	34	8	1	23	35	26
5000	6	23	0	2	3	19	27	39	2	6	59	18
Januar.	0	16	14	46	0	0	0	7	0	0	0	4
Februa.	1	0	55	13	0	0	0	13	0	0	0	8
Mart.	1	17	9	59	0	0	0	20	0	0	0	12
April.	2	2	53	18	0	0	0	26	0	0	0	16
Maj.	2	19	8	5	0	0	0	33	0	0	0	20
Jun.	3	4	51	24	0	0	0	39	0	0	0	24
Jul.	3	21	6	11	0	0	0	45	0	0	0	28
August.	4	7	20	57	0	0	0	52	0	0	0	32
Septem.	4	23	4	16	0	0	0	59	0	0	0	36
Octob.	5	9	19	3	0	0	1	6	0	0	0	40
Novemb	5	25	2	22	0	0	1	13	0	0	0	44
Decemb.	6	11	17	8	0	0	1	19	0	0	0	48

The mean motions of *Mars*.

	In dieb.								In hor. & min.			
D	Longit ♂			Ap.♂		Nod♂			H	Lon ♂	M	Lon.♂
	°	′	″	′	″	′	″			′ ″		′ ″
1	0	31	27	0	0	0	0		1	1 19	31	0 41
2	1	2	53	0	0	0	0		2	2 37	32	0 42
3	1	34	20	0	0	0	0		3	3 56	33	0 43
4	2	5	46	0	1	0	0		4	5 14	34	0 45
5	2	37	16	0	1	0	1		5	6 33	35	0 46
6	3	8	40	3	1	0	1		6	7 52	36	0 47
7	3	40	6	0	1	0	1		7	9 10	37	0 48
8	4	11	33	0	2	0	1		8	10 29	38	0 50
9	4	43	0	0	2	0	1		9	11 48	39	0 51
10	5	14	27	0	2	0	1		10	13 6	40	0 52
11	5	45	53	0	2	0	1		11	14 25	41	0 54
12	6	17	20	0	3	0	2		12	15 43	42	0 55
13	6	48	46	0	3	0	2		13	17 2	43	0 56
14	7	20	13	0	3	0	2		14	18 21	44	0 58
15	7	51	40	0	3	0	2		15	19 39	45	0 59
16	8	23	6	0	4	0	2		16	20 58	46	1 0
17	8	54	33	0	4	0	2		17	22 16	47	1 2
18	9	26	0	0	4	0	2		18	23 35	48	1 3
19	9	57	27	0	4	0	2		19	24 54	49	1 4
20	10	28	53	0	5	0	3		20	26 12	50	1 6
21	11	0	20	0	5	0	3		21	27 31	51	1 7
22	11	31	46	0	5	0	3		22	28 49	52	1 9
23	12	3	13	0	5	0	3		23	30 8	53	1 10
24	12	34	40	0	6	0	3		24	31 27	54	1 12
25	13	6	6	0	6	0	3		25	32 45	55	1 13
26	13	37	33	0	6	0	3		26	34 4	56	1 14
27	14	9	0	0	6	0	4		27	35 22	57	1 16
28	14	40	27	0	7	0	4		28	36 41	58	1 17
29	15	11	5	0	7	0	4		29	38 0	59	1 18
30	15	43	20	0	7	0	4		30	39 18	60	1 19
31	16	14	46	0	7	0	4		′	″ ‴	′	′ ″
32	16	46	13	0	8	0	4		″	‴ ⁗	″	″ ‴

The Æquations of *Mars*'s Excentrick.

Sig. 0					Sig. 1				
Æq. Sub.			Logar.		Æq. Sub.			Logar.	
°	′	″			°	′	″		
0	0	0	0	522,122	4	46	33	521,709	30
1	0	9	59	522,121	4	55	27	521,681	29
2	0	19	45	522,120	5	4	18	521,651	28
3	0	29	31	522,118	5	13	5	521,622	27
4	0	39	24	522,115	5	21	48	521,592	26
5	0	49	13	522,111	5	30	28	521,561	25
6	0	59	4	522,106	5	39	5	521,528	24
7	1	8	54	522,100	5	47	37	521,496	23
8	1	18	42	522,092	5	56	4	521,462	22
9	1	28	30	522,085	6	4	24	521,427	21
10	1	38	16	522,076	6	12	39	521,392	20
11	1	48	1	522,066	6	20	50	521,355	19
12	1	57	45	522,055	6	28	56	521,318	18
13	2	7	28	522,044	6	36	56	521,280	17
14	2	17	10	522,032	6	44	50	521,241	16
15	2	26	50	522,020	6	52	38	521,201	15
16	2	36	27	522,005	7	0	20	521,160	14
17	2	46	2	521,991	7	7	56	521,119	13
18	2	55	34	521,974	7	15	25	521,076	12
19	3	5	4	521,956	7	22	49	521,032	11
20	3	14	32	521,938	7	30	7	520,989	10
21	3	23	57	521,919	7	37	19	520,943	9
22	3	33	20	521,900	7	44	24	520,898	8
23	3	42	40	521,880	7	51	23	520,851	7
24	3	51	48	521,859	7	58	15	520,804	6
25	4	1	13	521,836	8	5	1	520,756	5
26	4	10	24	521,812	8	11	39	520,707	4
27	4	19	30	521,788	8	18	11	520,658	3
28	4	28	34	521,762	8	24	35	520,607	2
29	4	37	35	521,735	8	30	52	520,555	1
30	4	46	33	521,709	8	37	1	520,504	0
	Add.					*Add.*			
	Sig. 11					Sig. 10			

The Æquations of *Mars*'s Excentrick.

	Sig. 2				Sig. 2			
	Æq. Sub.			Logar.	Æq. Sub.			Logar.	
	°	′	″			′	″		
0	8	37	1	520,594	10	32	29	518,653	30
1	8	43	3	520,551	10	33	40	518,584	29
2	8	48	57	520,398	10	34	36	518,514	28
3	8	54	44	520,344	10	35	14	518,444	27
4	9	0	22	520,289	10	35	46	518,373	26
5	9	5	51	520,224	10	36	1	518,303	25
6	9	11	10	520,178	10	36	12	518,232	24
7	9	16	21	520,121	10	36	9	518,162	23
8	9	21	24	520,064	10	35	54	518,092	22
9	9	26	19	520,006	10	35	31	518,020	21
10	9	31	7	519,947	10	35	4	517,949	20
11	9	35	48	519,877	10	34	22	517,878	19
12	9	40	21	519,826	10	33	29	517,805	18
13	9	44	42	519,766	10	32	27	517,734	17
14	9	48	51	519,705	10	31	15	517,662	16
15	9	52	47	519,642	10	29	49	517,590	15
16	9	56	35	519,580	10	28	11	517,518	14
17	10	0	14	519,517	10	26	20	517,446	13
18	10	3	43	519,454	10	24	15	517,375	12
19	10	7	3	519,390	10	21	55	517,304	11
20	10	10	14	519,325	10	19	21	517,332	10
21	10	13	17	519,250	10	16	32	517,162	9
22	10	16	10	519,195	10	13	28	517,091	8
23	10	18	52	519,129	10	10	9	517,019	7
24	10	21	22	519,062	10	6	37	516,948	6
25	10	23	42	518,995	10	2	51	516,877	5
26	10	25	51	518,928	9	58	53	516,807	4
27	10	27	49	518,860	9	54	42	516,736	3
28	10	29	34	518,792	9	50	20	516,666	2
29	10	31	7	518,723	9	45	46	516,597	1
30	10	32	29	518,653	9	40	58	516,527	0

Add. Sig. 9

Add. Sig. 8

The Æquations of *Mars*'s Excentrick.

	Sig. 4 Æq. Sub. °	′	″	Logar.		Sig. 5 Æq. Sub. °	′	″	Logar.	
0	9	40	58	516,527		5	50	30	514,767	30
1	9	35	58	516,459		5	40	7	514,724	29
2	9	30	46	516,391		5	29	37	514,681	28
3	9	25	23	516,323		5	19	0	514,640	27
4	9	19	52	516,256		5	8	18	514,599	26
5	9	14	12	516,190		4	57	30	514,561	25
6	9	8	22	516,123		4	46	37	514,523	24
7	9	2	18	516,057		4	35	36	514,487	23
8	8	56	0	515,992		4	24	27	514,454	22
9	8	49	28	515,927		4	13	10	514,420	21
10	8	42	47	515,863		4	1	48	514,389	20
11	8	35	57	515,800		3	50	21	514,359	19
12	8	28	58	515,732		3	38	50	514,331	18
13	8	21	46	515,676		3	27	15	514,304	17
14	8	14	20	515,616		3	15	35	514,278	16
15	8	6	41	515,555		3	3	50	514,254	15
16	7	58	51	515,497		2	51	56	514,231	14
17	7	50	50	515,438		2	39	53	514,209	13
18	7	42	38	515,381		2	27	47	514,189	12
19	7	34	15	515,324		2	15	39	514,171	11
20	7	25	40	515,268		2	3	29	514,154	10
21	7	16	52	515,214		1	51	17	514,140	9
22	7	7	54	515,159		1	39	2	514,126	8
23	6	58	45	515,106		1	26	45	514,114	7
24	6	49	27	515,054		1	14	26	514,104	6
25	6	40	1	515,002		1	2	5	514,095	5
26	6	30	27	514,953		0	49	42	514,087	4
27	6	20	44	514,904		0	37	18	514,081	3
28	6	10	50	514,858		0	24	52	514,077	2
29	6	0	45	514,811		0	12	26	514,075	1
30	5	50	30	514,767		0	00	00	514,074	0
	Add. Sig. 7					*Add.* Sig. 6				

A Table of the Latitude of *Mars*

Tang. Inclin. max. 850946

	Sig. 0 6			Sig. 1 7			Sig. 2 8			
	Red. ſub		*curt*	*Red. ſub*		*curt*	*Red ſub*		*curt*	
	′	″		′	″		′	″		
0	0	0	000	0	47	006	0	47	017	30
1	0	1	0	0	48	6	0	46	017	29
2	0	3	0	0	48	6	0	45	018	28
3	0	5	0	0	49	7	0	44	018	27
4	0	7	0	0	49	7	0	43	018	26
5	0	9	0	0	49	7	0	42	018	25
6	0	11	0	0	50	8	0	41	019	24
7	0	13	0	0	50	8	0	39	019	23
8	0	15	1	0	51	8	0	38	019	22
9	0	16	1	0	51	9	0	37	020	21
10	0	18	1	0	52	9	0	36	020	20
11	0	20	1	0	52	010	0	34	020	19
12	0	22	1	0	52	010	0	33	020	18
13	0	24	1	0	52	011	0	32	021	17
14	0	26	2	0	53	011	0	30	021	16
15	0	28	2	0	53	011	0	28	021	15
16	0	30	2	0	53	012	0	26	021	14
17	0	32	2	0	52	012	0	24	021	13
18	0	33	2	0	52	012	0	22	021	12
19	0	34	3	0	52	013	0	20	022	11
20	0	36	3	0	52	013	0	18	022	10
21	0	37	3	0	51	014	0	16	022	9
22	0	38	3	0	51	014	0	15	022	8
23	0	39	4	0	50	014	0	13	022	7
24	0	41	4	0	50	015	0	11	022	6
25	0	42	4	0	49	015	0	9	022	5
26	0	43	4	0	49	015	0	7	022	4
27	0	44	5	0	49	016	0	5	022	3
28	0	45	5	0	48	016	0	3	022	2
29	0	46	5	0	48	017	0	1	022	1
30	0	47	006	0	47	017	0	0	022	0
	Add			*Add.*			*Add.*			
	Sig. 11		5	Sig. 10		4	Sig. 9		3	

THE TABLES OF VENUS.

The mean motions of *Venus.*

Epocha	*Longit.* ♀				*Aphel.* ♀				*Nod.* ♀			
	s	o	′	″	s	o	′	″	s	o	′	′
Per. Julian.	11	14	20	15	7	6	27	9	0	21	13	51
Mundi	10	12	12	5	7	17	12	55	0	27	37	57
Christi	1	12	46	45	9	12	50	44	2	0	43	16
An. Dom. 1600	11	22	28	22	10	5	23	6	2	14	7	38
1620	5	26	20	38	10	5	40	0	2	14	17	41
1640	0	0	12	54	10	5	56	54	2	14	27	44
1660	6	4	5	10	10	6	13	48	2	14	37	47
1	7	14	47	35	0	0	0	51	0	0	0	30
2	2	29	35	10	0	0	1	41	0	0	1	0
3	10	24	22	45	0	0	2	32	0	0	1	30
B 4	6	0	46	27	0	0	3	23	0	0	2	1
5	1	15	34	2	0	0	4	13	0	0	2	31
6	9	0	21	37	0	0	5	4	0	0	3	1
7	4	15	9	12	0	0	5	55	0	0	3	31
B 8	0	1	32	54	0	0	6	45	0	0	4	1
9	7	16	20	29	0	0	7	36	0	0	4	31
10	3	1	8	4	0	0	8	27	0	0	5	1
11	10	15	55	39	0	0	9	17	0	0	5	32
B 12	6	2	19	22	0	0	10	8	0	0	6	2
13	1	17	6	57	0	0	10	59	0	0	6	32
14	9	1	54	31	0	0	11	50	0	0	7	2
15	4	16	42	6	0	0	12	40	0	0	7	32
B 16	0	3	5	49	0	0	13	31	0	0	8	2
17	7	17	53	24	0	0	14	22	0	0	8	32
18	3	2	40	59	0	0	15	12	0	0	9	3
19	10	17	28	34	0	0	16	3	0	0	9	33
B 20	6	3	52	16	0	0	16	54	0	0	10	3
40	0	7	44	32	0	0	33	49	0	0	20	7
60	6	11	36	49	0	0	50	43	0	0	30	10
80	0	15	29	5	0	1	7	37	0	0	40	13
100	6	19	21	21	0	1	24	31	0	0	50	16

The mean motions of *Venus*.

Anni	*Longit.* ♀				*Aphel.* ♀				*Noa.* ♀			
	S	o	′	″	S	o	′	″	S	o	′	″
100	6	19	21	21	0	1	24	31	0	0	50	16
200	1	8	42	42	0	2	49	3	0	1	40	33
300	7	28	4	3	0	4	13	34	0	2	30	49
400	2	17	25	24	0	5	38	6	0	2	21	6
500	9	6	46	45	0	7	2	37	0	4	11	22
600	3	26	8	6	0	8	27	8	0	5	1	39
700	10	15	29	27	0	9	51	40	0	5	51	55
800	5	4	50	47	0	11	16	11	0	6	42	12
900	11	24	12	9	0	12	40	42	0	7	32	28
1000	6	13	33	30	0	14	5	14	0	8	22	44
2000	0	27	6	59	0	28	10	28	0	16	45	29
3000	7	10	40	29	1	12	15	41	0	28	8	13
4000	1	24	13	58	1	26	20	56	1	3	30	58
5000	8	7	47	28	2	10	26	9	1	11	53	42

Januar.	1	19	40	3	0	0	0	4	0	0	0	3
Februa.	3	4	31	42	0	0	0	8	0	0	0	5
Mart.	4	24	11	44	0	0	0	13	0	0	0	8
April.	6	12	15	39	0	0	0	17	0	0	0	10
Maj.	8	1	55	42	0	0	0	21	0	0	0	13
Jun.	9	19	59	37	0	0	0	25	0	0	0	15
Jul.	11	9	39	39	0	0	0	29	0	0	0	18
Auguſt.	0	29	19	42	0	0	0	33	0	0	0	20
Septemb	2	17	23	37	0	0	0	38	0	0	0	22
Octob.	4	7	3	39	0	0	0	42	0	0	0	25
Novem.	5	21	7	34	0	0	0	46	0	0	0	27
Decemb	7	14	47	25	0	0	0	51	0	0	0	30

The mean motions of *Venus*.

D	*In dieb.* Longitud. ♀				ap. ♀		nod. ♀	
	S	o	′	″	′	″	′	″
1	0	1	36	8	0	0	0	0
2	0	3	12	16	0	0	0	0
3	0	4	48	23	0	0	0	0
4	0	6	24	31	0	0	0	0
5	0	8	0	39	0	0	0	0
6	0	9	36	47	0	0	0	0
7	0	11	12	55	0	1	0	1
8	0	12	49	3	0	1	0	1
9	0	14	25	10	0	1	0	1
10	0	16	1	18	0	1	0	1
11	0	17	37	26	0	1	0	1
12	0	19	13	34	0	1	0	1
13	0	20	49	42	0	1	0	1
14	0	22	25	50	0	2	0	1
15	0	24	1	57	0	2	0	1
16	0	25	38	5	0	2	0	1
17	0	27	14	13	0	2	0	2
18	0	28	50	21	0	2	0	2
19	1	0	26	29	0	2	0	2
20	1	2	2	37	0	2	0	2
21	1	3	38	44	0	3	0	2
22	1	5	14	52	0	3	0	2
23	1	6	51	0	0	3	0	2
24	1	8	27	8	0	3	0	2
25	1	20	3	16	0	3	0	2
26	1	11	39	23	0	3	0	2
27	1	13	15	31	0	3	0	3
28	1	14	51	39	0	4	0	3
29	1	16	27	47	0	4	0	3
30	1	18	3	55	0	4	0	3
31	1	19	40	3	0	4	0	3
32	1	21	16	11	0	4	0	3

H	*In hor. & min.* Longit. ♀			M	Lon	
	o	′	″		′	″
1	0	4	0	31	2	4
2	0	8	1	32	2	8
3	0	12	1	33	2	12
4	0	16	2	34	2	16
5	0	20	2	35	2	20
6	0	24	2	36	2	24
7	0	28	3	37	2	28
8	0	32	3	38	2	32
9	0	36	3	39	2	36
10	0	40	4	40	2	40
11	0	44	4	41	2	44
12	0	48	5	42	2	48
13	0	52	5	43	2	52
14	0	56	5	44	2	56
15	1	0	6	45	3	0
16	1	4	6	46	3	4
17	1	8	6	47	3	8
18	1	12	7	48	3	12
19	1	16	7	49	3	16
20	1	20	8	50	3	20
21	1	24	8	51	3	24
22	1	28	8	52	3	28
23	1	32	9	53	3	32
24	1	36	9	54	3	36
25	1	40	9	55	3	40
26	1	44	10	56	3	44
27	1	48	10	57	3	48
28	1	52	11	58	3	52
29	1	56	11	59	3	56
30	2	0	11	60	4	0
	′	″	‴		′	″
	″	‴	⁗		″	‴

The Æquations of *Venus* Excentrick.

	Sig. 0				Sig. 1				
	Æq. Sub.			Logar.	Æq. Sub.			Logar.	
	°	′	″		°	′	″		
0	0	0	0	486,316	0	27	0	486,271	30
1	0	0	58	486,316	0	27	46	486,268	29
2	0	1	55	486,316	0	28	34	486,265	28
3	0	2	51	486,315	0	29	22	486,262	27
4	0	3	48	486,315	0	30	10	486,259	26
5	0	4	44	486,314	0	30	58	486,256	25
6	0	5	41	486,314	0	31	45	486,252	24
7	0	6	37	486,313	0	32	31	486,249	23
8	0	7	32	486,313	0	32	17	486,245	22
9	0	8	28	486,312	0	34	2	486,241	21
10	0	9	23	486,311	0	34	46	486,237	20
11	0	10	18	486,310	0	35	31	486,233	19
12	0	11	14	486,309	0	36	15	486,229	18
13	0	12	10	486,308	0	36	58	486,225	17
14	0	13	5	486,307	0	37	38	486,221	16
15	0	14	0	486,305	0	38	18	486,217	15
16	0	14	55	486,304	0	38	58	486,213	14
17	0	15	49	486,302	0	39	37	486,209	13
18	0	16	44	486,300	0	40	16	486,204	12
19	0	17	38	486,298	0	40	54	486,200	11
20	0	18	33	486,296	0	41	32	486,195	10
21	0	19	28	486,294	0	42	9	486,191	9
22	0	20	22	486,292	0	42	46	486,186	8
23	0	21	14	486,290	0	43	23	486,182	7
24	0	22	5	486,288	0	43	58	486,177	6
25	0	22	55	486,285	0	44	33	486,172	5
26	0	23	45	486,283	0	45	6	486,167	4
27	0	24	35	486,280	0	45	38	486,162	3
28	0	25	24	486,277	0	46	11	486,157	2
29	0	26	12	486,274	0	46	41	486,152	1
30	0	27	0	486,271	0	47	10	486,147	0
	Add.				Add.				
	Sig. 11				Sig. 10				

The Æquations of *Venus* Excentrick.

	Sig. 2 Æq. Sub.			Logar.		Sig. 3 Æq. Sub.			Logar.	
	o	′	″			o	′	″		
0	0	47	10	486,147	30	0	54	36	485,975	30
1	0	47	38	486,142	29	0	54	36	485,969	29
2	0	48	5	486,137	28	0	54	35	485,963	28
3	0	48	31	486,132	27	0	54	34	485,957	27
4	0	48	55	486,127	26	0	54	31	485,951	26
5	0	49	18	486,121	25	0	54	27	485,945	25
6	0	49	40	486,116	24	0	54	22	485,940	24
7	0	50	2	486,110	23	0	54	15	485,934	23
8	0	50	24	486,105	22	0	54	8	485,928	22
9	0	50	46	486,099	21	0	54	0	485,922	21
10	0	51	7	486,093	20	0	53	52	485,916	20
11	0	51	28	486,087	19	0	53	43	485,910	19
12	0	51	49	486,082	18	0	53	33	485,904	18
13	0	52	5	486,076	17	0	53	22	485,898	17
14	0	51	20	486,070	16	0	53	8	485,892	16
15	0	52	35	486,065	15	0	52	53	485,886	15
16	0	52	51	486,059	14	0	52	35	485,881	14
17	0	53	6	486,053	13	0	52	19	485,875	13
18	0	52	20	486,047	12	0	52	3	485,869	12
19	0	53	32	486,041	11	0	51	46	485,863	11
20	0	53	43	486,035	10	0	51	28	485,857	10
21	0	53	52	486,029	9	0	51	7	485,851	9
22	0	54	0	486,023	8	0	50	45	485,845	8
23	0	54	8	486,017	7	0	50	23	485,839	7
24	0	54	15	486,011	6	0	50	1	485,834	6
25	0	54	21	486,005	5	0	49	38	485,828	5
26	0	54	26	485,999	4	0	49	15	485,823	4
27	0	54	31	485,993	3	0	48	51	485,817	3
28	0	54	34	485,987	2	0	48	26	485,812	2
29	0	54	36	485,981	1	0	48	0	485,807	1
30	0	54	36	485,975	0	0	47	34	485,802	0
	Add.					*Add.*				
	Sig. 9					Sig. 8				

The Æquations of *Venus* Excentrick.

	Sig. 4 Æq. Sub.			Logar.		Sig. 5 Æq. Sub.			Logar.	
	o	′	″			o	′	″		
0	0	47	34	485,802		0	27	20	485,673	30
1	0	47	5	485,797		0	26	31	485,670	29
2	0	46	35	485,792		0	25	41	485,667	28
3	0	46	4	485,787		0	24	52	485,664	27
4	0	45	32	485,782		0	24	2	485,662	26
5	0	44	58	485,777		0	23	12	485,659	25
6	0	44	24	485,772		0	22	22	485,657	24
7	0	43	49	485,767		0	21	30	485,654	23
8	0	43	13	485,762		0	20	37	485,652	22
9	0	42	37	485,757		0	19	45	485,650	21
10	0	42	0	485,752		0	18	52	485,648	20
11	0	41	23	485,747		0	17	55	485,646	19
12	0	40	45	485,743		0	17	0	485,644	18
13	0	40	7	485,738		0	16	5	485,642	17
14	0	39	27	485,734		0	15	9	485,641	16
15	0	38	47	485,729		0	14	13	485,639	15
16	0	38	6	485,725		0	13	17	485,638	14
17	0	37	25	485,721		0	12	21	485,636	13
18	0	36	42	485,717		0	11	25	485,635	12
19	0	35	58	485,713		0	10	29	485,633	11
20	0	35	13	485,709		0	9	33	485,632	10
21	0	34	28	485,705		0	8	36	485,631	9
22	0	33	42	485,701		0	7	39	485,630	8
23	0	32	56	485,697		0	6	43	485,629	7
24	0	32	9	485,693		0	5	46	485,629	6
25	0	31	22	485,690		0	4	49	485,628	5
26	0	30	35	485,686		0	3	52	485,627	4
27	0	29	47	485,683		0	2	54	485,627	3
28	0	28	59	485,679		0	1	56	485,626	2
29	0	28	10	485,676		0	0	58	485,626	1
30	0	27	20	485,673		0	0	0	485,626	0
	Add. Sig. 7					*Add.* Sig. 6				

A Table of the Latitude of *Venus*.

Tang. Inclinat. max. 877144

	Sig. 0 6			Sig. 1 7			Sig. 2 8			
	Red. sub		*curt*	*Red. sub*		*curt*	*Red. sub*		*curt*	
	′	″		′	″		′	″		
0	0	0	000	2	35	019	2	35	056	30
1	0	7	0	2	38	020	2	32	058	29
2	0	13	0	2	42	021	2	28	059	28
3	0	19	0	2	45	022	2	25	060	27
4	0	26	0	2	47	024	2	21	061	26
5	0	32	1	2	50	025	2	16	062	25
6	0	38	1	2	52	026	2	12	063	24
7	0	45	1	2	54	028	2	8	064	23
8	0	51	1	2	55	029	2	3	065	22
9	0	57	2	2	56	030	1	59	066	21
10	1	2	2	2	56	031	1	54	067	20
11	1	8	3	2	57	032	1	50	067	19
12	1	13	3	2	58	034	1	45	068	18
13	1	18	4	2	58	035	1	40	069	17
14	1	24	4	2	59	937	1	34	069	16
15	1	29	5	2	59	038	1	29	070	15
16	1	34	6	2	59	039	1	24	071	14
17	1	40	6	2	58	040	1	18	071	13
18	1	45	7	2	58	042	1	13	072	12
19	1	50	8	2	57	043	1	8	072	11
20	1	54	9	2	56	044	1	2	073	10
21	1	59	010	2	56	045	0	57	073	9
22	2	3	011	2	55	047	0	51	074	8
23	2	8	012	2	54	048	0	45	074	7
24	2	12	013	2	52	049	0	38	074	6
25	2	16	014	2	50	050	0	32	075	5
26	2	21	015	2	47	052	0	26	075	4
27	2	25	016	2	45	053	0	19	075	3
28	2	28	017	2	42	054	0	13	075	2
29	2	32	018	2	38	055	0	7	075	1
30	2	35	019	2	35	056	0	0	075	0
	Add.			*Add.*			*Add*			
	Sig. 11	5		Sig. 10	4		Sig. 9	3		

THE TABLES OF MERCURIE.

The mean motions of *Mercury*.

Epochæ	Longit. ☿				Aphel. ☿				Nod. ☿			
	S	o	′	″	S	o	′	″	S	o	′	″
Per. Ju.	2	3	51	6	2	8	52	53	7	24	53	45
Mundi	4	8	24	29	3	00	59	51	8	15	10	50
Christi.	10	16	15	40	6	25	18	49	00	00	01	48
An. Dom. 1600	2	6	57	21	8	11	37	49	01	12	30	41
1620	2	21	50	22	8	12	12	33	01	13	2	33
1640	3	6	43	23	8	12	47	17	01	13	34	25
1660	3	21	39	25	8	13	21	1	01	14	6	17
1	1	23	43	16	00	00	01	44	00	00	01	36
2	2	17	36	32	00	00	03	28	00	00	03	11
3	5	11	9	48	00	00	05	12	00	00	04	47
B 4	7	8	58	36	00	00	06	57	00	00	06	22
5	9	2	41	52	00	00	08	41	00	00	07	58
6	10	26	25	8	00	00	10	25	00	00	09	33
7	0	20	8	24	00	00	12	9	00	00	11	9
B 8	2	17	57	13	00	00	13	54	00	00	12	45
9	4	11	40	28	00	00	15	38	00	00	14	20
10	6	5	23	44	00	00	17	22	00	00	15	56
11	7	29	7	0	00	00	19	6	00	00	17	31
B 12	9	26	55	49	00	00	20	51	00	00	19	7
13	11	20	39	5	00	00	22	35	00	00	20	43
14	1	14	22	21	00	00	24	19	00	00	22	18
15	3	8	5	37	00	00	26	3	00	00	23	54
B 16	5	5	54	25	00	00	27	48	00	00	25	29
17	6	29	37	41	00	00	29	32	00	00	27	05
18	8	23	20	57	00	00	31	16	00	00	28	40
19	10	17	4	13	00	00	33	0	00	00	30	16
B 20	0	14	53	1	00	00	34	44	00	00	31	52
40	0	29	46	2	00	01	9	28	00	01	3	43
60	1	14	39	3	00	01	44	12	00	01	35	35
80	1	29	32	5	00	02	18	58	00	02	07	27
100	2	14	25	6	00	02	53	41	00	02	39	18

The mean motions of *Mercury*.

Anni	Longit. ☿				Aphel. ☿				Nod. ☿			
	S	o	′	″	S	o	′	″	S	o	′	″
100	2	14	25	6	0	2	53	41	0	2	39	18
200	4	28	50	13	0	5	47	23	0	5	18	37
300	7	13	15	19	0	8	41	4	0	7	57	55
400	9	27	40	25	0	11	34	45	0	10	37	13
500	0	12	5	32	0	14	28	26	0	13	16	32
600	2	26	30	38	0	17	22	8	0	15	55	50
700	5	10	55	44	0	20	15	49	0	18	35	8
800	7	25	20	51	0	23	9	30	0	21	14	27
900	10	9	46	57	0	26	3	12	0	23	53	45
1000	0	24	11	3	0	28	56	53	0	26	33	3
2000	1	18	22	7	1	27	53	46	1	23	6	7
3000	2	12	33	10	2	26	50	39	2	19	39	10
4000	3	6	44	13	3	25	47	32	3	16	12	12
5000	4	0	55	17	4	24	44	55	4	12	45	17

Januar.	4	6	51	50	0	0	0	9	0	0	0	8
Februa.	8	1	27	3	0	0	0	17	0	0	0	16
Mart.	0	8	18	53	0	0	0	26	0	0	0	24
April.	4	11	5	11	0	0	0	35	0	0	0	31
Maj.	8	17	57	1	0	0	0	44	0	0	0	39
Jun.	0	20	43	19	0	0	0	52	0	0	0	47
Jul.	4	27	35	9	0	0	1	1	0	0	0	55
August.	9	4	26	59	0	0	1	9	2	0	1	4
Septem.	1	7	13	17	0	0	1	18	0	0	1	12
Octob.	5	14	5	8	0	0	1	27	0	0	1	20
Novemb	9	16	51	26	0	0	1	35	0	0	1	27
Decemb.	1	23	43	16	0	0	1	44	0	0	1	36

The mean motions of *Mercury*.

In dieb.

D	*Longitud.* ☿				*Ap.* ☿		*Nod.* ☿	
	♑	°	′	″	′	″	′	″
1	0	4	5	32	0	0	0	0
2	0	8	11	5	0	0	0	0
3	0	12	16	38	0	1	0	1
4	0	16	22	10	0	1	0	1
5	0	20	27	43	0	1	0	1
6	0	24	33	16	0	2	0	1
7	0	28	38	48	0	2	0	2
8	1	2	44	21	0	2	0	2
9	1	6	49	53	0	3	0	2
10	1	10	55	26	0	3	0	3
11	1	15	0	58	0	3	0	3
12	1	19	6	31	0	4	0	3
13	1	23	12	4	0	4	0	3
14	1	27	17	36	0	4	0	4
15	2	1	23	9	0	5	0	4
16	2	5	28	41	0	5	0	4
17	2	9	34	14	0	5	0	5
18	2	13	39	47	0	6	0	5
19	2	17	45	19	0	6	0	5
20	2	21	50	52	0	6	0	6
21	2	25	56	24	0	7	0	6
22	3	0	1	57	0	7	0	6
23	3	4	7	30	0	7	0	6
24	3	8	13	2	0	8	0	7
25	3	12	18	35	0	8	0	7
26	3	16	24	7	0	8	0	7
27	3	20	29	40	0	8	0	7
28	3	24	35	13	0	9	0	8
29	3	28	40	45	0	9	0	8
30	4	2	46	18	0	9	0	8
31	4	6	51	50	0	9	0	8
32	4	10	57	22	0	10	0	9

In hor. & min.

H	*Long.* ☿			M	*Lon.* ☿	
	°	′	″		′	″
1	0	10	14	31	5	17
2	0	28	28	32	5	27
3	0	30	42	33	5	38
4	0	40	56	34	5	48
5	0	51	9	35	5	58
6	1	1	23	36	6	8
7	1	11	37	37	6	19
8	1	21	51	38	6	29
9	1	32	5	39	6	39
10	1	42	19	40	6	49
11	1	52	32	41	7	0
12	2	2	46	42	7	10
13	2	13	0	43	7	20
14	2	23	14	44	7	30
15	2	33	28	45	7	40
16	2	43	41	46	7	51
17	2	53	55	47	8	1
18	3	4	9	48	8	11
19	3	14	23	49	8	21
20	3	24	37	50	8	32
21	3	34	51	51	8	42
22	3	45	4	52	8	52
23	3	55	18	53	9	2
24	4	5	12	54	9	13
25	4	15	46	55	9	23
26	4	26	0	56	9	33
27	4	36	14	57	9	43
28	4	46	28	58	9	53
29	4	56	42	59	10	4
30	5	6	56	60	10	14
′	′	″	‴	′	′	″
″	″	‴	⁗	″	″	‴

The Æquations of *Mercuries* Excentrick.

	Sig. 0				Sig. 1			
	Æq. Sub.			*Logar.*	*Æq. Sub*			*Logar.*	
	°	′	″		°	′	″		
0	0	0	0	466,922	9	24	2	466,267	30
1	0	19	8	466,922	9	42	11	466,223	29
2	0	38	5	466,921	10	0	16	466,177	28
3	0	57	7	466,919	10	18	27	466,129	27
4	1	16	20	466,916	10	36	33	466,079	26
5	1	35	14	466,912	10	54	29	466,027	25
6	1	54	14	466,906	11	12	10	465,973	24
7	2	13	7	466,898	11	30	0	465,918	23
8	2	32	19	466,889	11	47	40	465,862	22
9	2	51	16	466,878	12	5	20	465,804	21
10	2	10	20	466,865	12	22	58	465,744	20
11	3	29	19	466,850	12	40	51	465,683	19
12	3	48	4	466,833	12	58	7	465,620	18
13	4	7	12	466,814	13	15	22	465,555	17
14	4	26	12	466,794	13	32	20	465,489	16
15	4	44	54	466,772	13	49	33	465,421	15
16	5	3	51	466,748	14	6	31	465,351	14
17	5	22	43	466,722	14	23	19	465,279	13
18	5	41	28	466,694	14	40	8	465,206	12
19	6	0	19	466,665	14	56	46	465,132	11
20	6	19	2	466,634	15	13	6	465,056	10
21	6	37	42	466,602	15	29	39	464,978	9
22	6	56	21	466,569	15	45	57	464,898	8
23	7	15	1	466,535	16	1	57	464,816	7
24	7	33	34	466,500	16	17	54	464,733	6
25	7	52	13	466,464	16	33	47	464,648	5
26	8	10	32	466,427	16	49	20	464,561	4
27	8	29	8	466,389	17	4	55	464,472	3
28	8	47	36	466,350	17	20	20	464,381	2
29	9	6	0	466,309	17	35	18	464,288	1
30	9	24	2	466,267	17	50	18	464,194	0
	Add.				*Add.*				
	Sig. 11				Sig. 10				

The Æquations of *Mercuries* Excentrick.

Sig. 2					Sig. 3				
Æq. Sub.			Logar.		Æq. Sub.			Logar.	
°	′	″			°	′	″		
0	17	50	18	464,194	23	27	14	460,519	30
1	18	5	10	464,098	23	33	32	460,368	29
2	18	19	47	464,000	23	39	29	460,216	28
3	18	34	11	463,899	23	44	59	460,063	27
4	18	48	17	463,796	23	50	9	459,908	26
5	19	2	18	463,691	23	54	52	459,752	25
6	19	16	9	463,583	23	59	2	459,594	24
7	19	29	44	463,473	24	2	48	459,435	23
8	19	43	2	463,361	24	6	15	459,274	22
9	19	56	10	463,247	24	9	19	459,112	21
10	20	9	3	463,132	22	11	52	458,949	20
11	20	21	43	463,017	24	13	49	458,785	19
12	20	34	8	462,901	24	15	18	458,620	18
13	20	46	19	462,783	24	16	21	458,454	17
14	20	58	14	462,664	24	17	1	458,287	16
15	21	9	56	462,544	24	17	20	458,118	15
16	21	21	12	462,423	24	16	42	457,947	14
17	21	32	28	462,301	24	16	4	457,775	13
18	21	43	3	462,177	24	14	28	457,602	12
19	21	53	40	462,051	24	12	34	457,428	11
20	22	3	43	461,923	24	10	12	457,253	10
21	22	13	37	461,793	24	7	2	457,077	9
22	22	23	11	461,661	24	3	34	456,901	8
23	22	32	36	461,526	23	59	23	456,724	7
24	22	41	16	461,389	23	54	45	456,547	6
25	22	49	45	461,250	23	49	57	456,369	5
26	22	58	0	461,109	23	44	19	456,192	4
27	23	8	48	460,965	23	38	9	456,014	3
28	23	13	20	460,819	23	31	30	455,836	2
29	23	20	29	460,670	23	24	5	455,658	1
30	23	27	14	460,519	23	16	17	455,481	0

Add. Sig. 9 | *Add.* Sig. 8

The Æquations of *Mercuries* Excentrick.

Sig. 4					Sig. 5				
	Æq. Sub.			*Logar.*	*Æq. Sub.*			*Logar.*	
	°	′	″		°	′	″		
0	23	16	17	455,481	14	55	0	450,549	30
1	23	7	50	455,303	14	30	33	450,413	29
2	22	59	0	455,125	14	4	27	450,281	28
3	22	49	24	454,948	13	38	31	450,153	27
4	22	39	6	454,770	13	12	2	450,030	26
5	22	28	18	454,593	12	45	14	449,912	25
6	22	16	55	454,415	12	18	17	449,799	24
7	22	5	2	454,238	11	50	39	449,690	23
8	21	52	33	454,061	11	22	39	449,585	22
9	21	39	33	453,885	10	54	20	449,484	21
10	21	25	44	453,709	10	25	39	449,387	20
11	21	11	19	453,534	9	56	36	449,295	19
12	20	56	29	453,36	9	27	12	449,208	18
13	20	41	2	453,188	8	17	25	449,125	17
14	20	25	10	453,017	8	27	27	449,047	16
15	20	8	40	452,848	7	57	21	448,974	15
16	19	51	39	452,681	7	26	49	448,907	14
17	19	33	59	452,515	6	55	49	448,845	13
18	19	15	40	452,351	6	24	40	448,788	12
19	18	56	53	452,190	5	53	23	448,737	11
20	18	37	30	452,031	5	21	57	448,689	10
21	18	17	38	451,874	4	50	15	448,644	9
22	17	57	8	451,719	4	18	23	448,601	8
23	17	36	9	451,566	3	46	18	448,562	7
24	17	14	41	451,415	3	14	13	448,526	6
25	16	52	36	451,266	2	42	5	448,494	5
26	16	30	2	451,119	2	9	50	[illegible]467	4
27	16	7	4	450,974	1	37	28	[illegible]444	3
28	15	43	24	450,831	1	5	1	448,425	2
29	15	19	23	450,689	0	32	33	448,410	1
30	14	55	0	450,549	0	0	0	448,402	0
	Add.				*Add.*				
	Sig. 7				Sig. 6				

A Table of the Latitude of *Mercury.*

Tang. Incli n. max. 98283

	Sig. 0 6			Sig. 1 7			Sig. 2 8			
	Red. ſub		*curt*	*Red. ſub*		*curt*	*Red ſub*		*curt*	
	′	″		′	″		′	″		
0	0	0	000	10	49	079	10	49	237	30
1	0	26	0	11	2	084	10	36	241	29
2	0	52	0	11	14	089	10	22	246	28
3	1	18	1	11	25	093	10	7	251	27
4	1	44	1	11	35	098	9	51	255	26
5	2	10	2	11	44	104	9	34	259	25
6	2	35	3	11	53	109	9	17	263	24
7	3	1	4	12	01	114	8	59	267	23
8	3	26	6	12	08	119	8	41	271	22
9	3	51	8	12	14	125	8	22	275	21
10	4	16	010	12	19	130	8	2	279	20
11	4	40	012	12	23	136	7	42	282	19
12	5	4	014	12	26	141	7	21	285	18
13	5	28	016	12	28	147	6	59	289	17
14	5	51	018	12	29	152	6	37	292	16
15	6	14	021	12	30	158	6	14	295	15
16	6	37	024	12	29	163	5	51	297	14
17	6	59	027	12	28	169	5	28	300	13
18	7	21	033	12	26	174	5	4	302	12
19	7	42	033	12	23	180	4	40	304	11
20	8	2	037	12	19	185	4	16	306	10
21	8	22	040	12	14	191	3	51	308	9
22	8	41	044	12	8	196	3	26	309	8
23	8	59	048	12	1	201	3	1	311	7
24	9	17	052	11	53	207	2	35	312	6
25	9	34	056	11	44	212	2	10	313	5
26	9	51	061	11	35	217	1	44	314	4
27	10	7	065	11	25	222	1	18	315	3
28	10	22	069	11	14	227	0	52	315	2
29	10	36	074	11	2	232	0	26	316	1
30	10	49	079	10	49	237	0	0	316	0
	Add			*Add.*			*Add.*			
	Sig. 11 5			Sig. 10 4			Sig. 9 3			

THE MOONS TABLES.

The *Moons* mean motions.

Epochæ	Longit. D				Anom. D				Latitud. D			
	S	o	′	″	S	o	′	″	S	o	′	″
Per. Ju.	4	13	57	49	0	13	53	57	11	18	10	21
Mundi	11	10	1	52	4	23	34	32	11	1	0	58
Christi.	4	35	43	54	7	5	32	31	7	16	57	30
An. Dom. 1600	0	20	41	31	5	1	34	16	3	9	11	33
1620	5	4	15	14	6	11	16	17	8	19	35	43
1640	9	17	48	57	7	20	58	19	1	29	59	54
1660	2	1	22	41	9	0	40	20	7	10	24	5
1	4	9	23	38	2	28	43	8	4	28	42	46
2	8	18	46	5	5	27	26	15	9	27	25	32
3	0	28	9	7	8	26	9	23	2	26	8	18
B 4	5	20	42	45	0	7	56	23	8	8	4	49
5	10	0	5	47	3	6	39	31	1	6	47	35
6	2	9	28	49	6	5	22	39	6	5	30	21
7	6	18	51	52	9	4	5	46	11	4	13	8
B 8	11	11	25	29	0	15	52	47	4	16	9	40
9	3	20	48	31	3	14	35	55	9	14	52	26
10	8	0	11	34	6	13	19	3	2	13	35	12
11	0	9	34	36	9	12	2	11	7	12	17	58
B 12	5	2	8	14	0	23	49	12	0	24	14	30
13	9	11	31	16	3	22	32	20	5	22	57	16
14	1	20	54	18	6	21	15	27	10	21	40	2
15	6	0	17	21	9	18	58	35	3	20	22	48
B 16	10	22	50	58	1	1	45	36	9	2	19	20
17	3	2	14	1	4	0	28	44	2	1	2	6
18	7	11	37	3	6	29	11	52	6	29	44	52
19	11	21	0	5	9	27	55	0	11	28	27	38
B 20	4	13	33	43	1	9	42	1	5	10	24	10
40	8	27	7	26	2	19	24	3	10	20	48	21
60	1	10	41	10	3	29	9	4	4	1	12	32
80	5	24	14	53	5	8	48	5	9	11	36	42
100	10	7	48	36	6	18	30	7	2	22	0	53

The *Moons* mean motions.

Anni	*Longit.* ☽				*Anom.* ☽				*Latit.* ☽			
	S	o	′	″	S	o	′	″	S	o.	′	″
100	10	7	48	36	6	18	30	7	2	22	0	53
200	8	15	37	12	1	7	0	13	5	14	1	45
300	6	23	25	48	7	25	30	20	8	6	2	38
400	5	1	14	24	2	14	0	26	10	28	3	31
500	3	9	3	0	9	2	30	33	1	20	4	24
600	1	16	51	36	3	21	0	39	4	12	5	16
700	11	24	40	12	10	9	30	45	7	4	6	9
800	10	2	28	48	4	28	0	52	9	26	7	2
900	8	10	17	25	11	16	30	59	0	18	7	55
1000	6	18	6	1	6	5	1	5	3	10	8	47
2000	1	6	12	1	0	10	2	11	6	20	17	35
3000	7	24	18	2	6	15	3	16	10	0	26	22
4000	2	12	24	2	0	20	4	21	1	10	35	10
5000	9	0	30	3	6	25	5	27	4	20	43	57

Januar.	1	18	28	6	1	15	0	52	1	20	6	26
Februa.	1	27	24	26	1	20	50	2	2	0	31	54
Mart.	3	15	52	32	3	5	50	55	3	20	38	29
April.	4	21	10	2	4	7	47	53	4	27	31	19
Maj.	6	9	38	8	5	22	48	45	6	17	37	54
Jun.	7	14	53	39	6	24	45	43	7	24	30	44
Jul.	9	3	23	44	8	9	46	35	9	14	37	19
Auguſt.	10	21	51	50	9	24	47	26	11	4	43	54
Septemb	11	27	9	20	10	26	44	25	0	11	36	44
Octob.	1	15	37	26	0	11	45	17	2	1	43	19
Novem.	2	20	54	57	1	13	42	15	3	8	36	9
Decemb	4	9	23	2	2	28	43	8	4	28	42	46

The *Moons* mean motions.

Dies	*Longit.* ☽				*Anom.* ☽				*Latit.* ☽			
	S	o	′	″	S	o	′	″	S	o	′	″
1	0	13	10	35	0	13	3	54	0	13	13	46
2	0	26	21	10	0	26	7	48	0	26	27	31
3	1	9	31	45	1	9	11	42	1	9	41	17
4	1	22	42	20	1	22	15	36	1	22	55	2
5	2	5	52	55	2	5	19	30	2	6	8	48
6	2	19	30	30	2	18	23	24	2	19	22	34
7	3	2	14	5	3	1	27	18	3	2	36	19
8	3	15	24	40	3	14	31	12	3	15	50	5
9	3	28	35	15	3	27	35	5	3	29	3	51
10	4	11	45	50	4	10	38	59	4	12	17	36
11	4	24	56	25	4	23	42	53	4	25	31	22
12	5	8	7	0	5	6	46	47	5	8	45	8
13	5	21	17	35	5	19	50	41	5	21	58	53
14	6	4	28	10	6	2	54	35	6	5	12	39
15	6	17	38	45	6	15	58	29	6	18	26	25
16	7	0	49	20	6	29	2	23	7	1	40	10
17	7	13	59	55	7	12	6	17	7	14	53	56
18	7	27	10	30	7	25	10	11	7	28	7	42
19	8	10	21	5	8	8	14	5	8	11	21	27
20	8	23	31	40	8	21	17	59	8	24	35	13
21	9	6	42	15	9	4	21	53	9	7	48	59
22	9	19	52	50	9	17	25	47	9	21	2	44
23	10	3	3	25	10	0	29	41	10	4	16	30
24	10	16	14	0	10	13	33	35	10	17	30	16
25	10	29	24	35	10	26	37	28	11	0	44	1
26	11	12	35	10	11	9	41	22	11	13	57	47
27	11	25	45	45	11	22	45	16	11	27	11	33
28	0	8	56	20	0	5	49	10	0	10	25	18
29	0	22	6	55	0	18	53	4	0	23	39	4
30	1	5	17	30	1	1	56	58	1	6	52	49
31	1	18	28	5	1	15	0	52	1	20	6	35
32	2	1	38	40	1	28	4	46	2	3	20	20

The *Moons* mean motions.

In horis, hours.

	Longit. ☽			Anom. ☽			Latit. ☽		
	°	′	″	°	′	″	°	′	″
1	0	32	56	0	32	40	0	33	5
2	1	5	53	1	5	19	1	6	10
3	1	38	49	1	37	59	1	39	14
4	2	11	46	2	10	39	2	12	19
5	2	44	42	2	43	19	2	45	23
6	3	17	39	3	15	58	3	18	27
7	3	50	35	3	48	38	3	51	32
8	4	23	32	4	21	18	4	24	36
9	4	56	28	4	53	58	4	57	41
10	5	29	4	5	26	37	5	30	45
11	6	2	21	5	59	17	6	3	49
12	6	35	17	6	31	57	6	36	54
13	7	8	14	7	4	37	7	9	58
14	7	41	10	7	37	16	7	43	3
15	8	14	7	8	9	56	8	16	7
16	8	47	3	8	42	36	8	49	11
17	9	19	59	9	15	16	9	22	16
18	9	52	56	9	47	55	9	55	20
19	10	25	53	10	20	35	10	28	25
20	10	58	49	10	53	15	11	1	29
21	11	31	46	11	25	55	11	34	33
22	12	4	42	11	58	34	12	7	38
23	12	37	38	12	31	14	12	40	42
24	13	10	35	13	3	54	13	13	46
25	13	43	31	13	36	33	13	46	50
26	14	16	28	14	9	13	14	19	54
27	14	49	24	14	41	53	14	52	59
28	15	22	20	15	14	33	15	26	2
29	15	55	17	15	47	13	15	59	7
30	16	28	14	16	19	52	16	32	11
	′	″	‴	′	″	‴	′	″	‴
	″	‴	⁗	″	‴	⁗	″	‴	⁗

In min.

	Long.		Anom		Latit.	
	′	″	′	″	′	″
31	17	1	16	53	17	5
32	13	34	17	25	17	38
33	18	7	17	58	18	11
34	18	40	18	31	18	44
35	19	13	19	3	19	18
36	19	46	19	36	19	51
37	20	19	20	8	20	24
38	20	52	20	41	20	57
39	21	25	21	14	21	30
40	21	58	21	46	22	3
41	22	30	22	19	22	36
42	23	3	22	51	23	9
43	23	36	23	24	23	42
44	24	9	23	57	24	15
45	24	42	24	30	24	48
46	25	17	25	3	25	21
47	25	48	25	36	25	54
48	26	21	26	8	26	27
49	26	54	26	41	27	0
50	27	27	27	13	27	34
51	28	0	27	46	28	7
52	28	33	28	18	29	48
53	29	6	28	51	29	13
54	29	49	29	24	29	46
55	30	12	29	56	30	19
56	30	44	30	29	30	52
57	31	17	31	1	31	25
58	31	50	31	34	31	58
59	32	23	32	7	32	31
60	32	56	32	40	33	5
	′	″	′	″	′	″
	″	‴	″	‴	″	‴

The Æquations of the *Moons* Excentrick.

	Sig. 0 *Substr.*			Sig. 1 *Substr.*			Sig. 2 *Substr.*			Sig. 3 *Substr.*			Sig. 4 *Substr.*			Sig. 5 *Substr.*			
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	
	0	0	0	2	22	59	4	12	38	4	59	41	4	26	36	2	37	8	30
1	0	5	3	2	27	25	4	15	23	4	59	51	4	24	3	2	32	24	29
2	0	9	59	2	31	47	4	18	0	4	59	59	4	21	28	2	27	37	28
3	0	14	55	2	36	6	4	20	29	4	59	58	4	18	48	2	22	47	27
4	0	19	54	2	40	19	4	22	56	4	59	52	4	16	2	2	17	58	26
5	0	24	52	2	44	31	4	25	20	4	59	42	4	13	10	2	13	5	25
6	0	29	49	2	48	41	4	27	41	4	59	27	4	10	14	2	8	9	24
7	0	34	47	2	52	48	4	29	57	4	59	10	4	7	14	2	3	10	23
8	0	39	44	2	56	52	4	32	10	4	58	48	4	4	9	1	58	8	22
9	0	44	39	3	0	52	4	34	16	4	58	21	4	1	0	1	53	3	21
10	0	49	34	3	4	47	4	36	16	4	57	51	3	57	45	1	47	56	20
11	0	54	27	3	8	44	4	48	12	4	57	11	3	54	26	1	42	47	19
12	0	59	20	3	12	38	4	40	5	4	56	22	3	50	56	1	37	35	18
13	1	4	10	3	16	29	4	41	58	4	55	27	3	47	28	1	32	21	17
14	1	8	57	3	20	17	4	43	46	4	54	30	3	43	56	1	27	6	16
15	1	13	46	3	24	1	4	45	27	4	53	28	3	40	16	1	21	47	15
16	1	18	36	3	27	41	4	47	0	4	52	18	3	36	29	1	16	28	14
17	1	23	25	3	31	17	4	48	24	4	51	3	3	32	36	1	11	6	13
18	1	28	12	3	34	49	4	49	39	4	49	40	3	28	39	1	5	40	12
19	1	32	58	3	38	20	4	50	57	4	48	16	3	24	39	1	0	17	11
20	1	37	42	3	41	44	4	52	11	4	46	44	3	20	36	0	54	51	10
21	1	42	21	3	45	5	4	53	21	4	45	6	3	16	30	0	49	26	9
22	1	46	57	3	48	24	4	54	26	4	43	26	3	12	21	0	44	0	8
23	1	51	33	3	51	39	4	55	24	4	41	39	3	8	9	0	38	32	7
24	1	56	7	3	54	49	4	56	16	4	39	48	3	3	54	0	33	3	6
25	2	0	40	3	57	56	4	57	4	4	37	49	2	59	37	0	27	33	5
26	2	5	10	4	1	0	4	57	46	4	35	45	2	55	17	0	22	4	4
27	2	9	39	4	4	0	4	58	23	4	33	37	2	50	53	0	16	34	3
28	2	14	8	4	6	55	4	58	55	4	31	23	2	46	24	0	11	4	2
29	2	18	35	4	9	48	4	59	23	4	29	3	2	41	48	0	5	32	1
30	2	22	59	4	12	38	4	59	41	4	26	36	2	37	8	0	0	0	0
	Add.			*Add.*			*Add.*			*Add.*			*Add.*			*Add.*			
	Sig. 11			Sig. 10			Sig. 9			Sig. 8			Sig. 7			Sig. 6			

The *Moons* secondary Æquations.

	☉ 6 3	☉ 6 6	☉ 6 9	☉ 6 12	☉ 6 15	☉ 6 18	☉ 6 21	
	S	S	S	S	S	S	S	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
0 00	0 3	0 7	0 10	0 13	0 16	0 19	0 21	00 12
06	0 3	0 7	0 10	0 13	0 17	0 20	0 23	24
12	0 3	0 7	0 10	0 14	0 17	0 21	0 24	18
18	0 3	0 6	0 10	0 14	0 17	0 21	0 25	12
24	0 3	0 6	0 9	0 13	0 17	0 21	0 25	06
1 00	0 3	0 5	0 9	0 12	0 16	0 20	0 25	00 11
06	0 2	0 5	0 8	0 11	0 15	0 19	0 24	24
12	0 2	0 4	0 7	0 10	1 13	0 18	0 22	18
18	0 1	0 3	0 5	0 8	0 12	0 16	0 20	12
24	0 1	0 2	0 4	0 6	0 9	0 13	0 17	06
2 00	0 A 0	0 1	0 2	0 4	0 7	0 10	0 14	00 10
06	0 1	0A 1	0A 0	0 2	0 4	0 7	0 11	24
12	0 1	0 2	0 2	0A 1	0 1	0 3	0 7	18
18	0 2	0 3	0 4	0 4	0A 2	0A 1	0 2	12
24	0 3	0 5	0 6	0 7	0 6	0 5	0A 3	06
3 00	0 4	0 7	0 9	0 10	0 10	0 9	0 8	00 9
06	0 5	0 8	0 11	0 13	0 14	0 14	0 13	24
12	0 5	0 10	0 14	0 16	0 18	0 19	0 18	18
18	0 6	0 12	0 16	0 20	0 22	0 24	0 24	12
24	0 7	0 13	0 19	0 23	0 26	0 29	0 30	06
4 00	0 8	0 15	0 21	0 26	0 30	0 34	0 36	00 8
06	0 8	0 16	0 23	0 29	0 34	0 38	0 41	24
12	0 9	0 18	0 25	0 32	0 38	0 43	0 47	18
18	0 10	0 19	0 27	0 35	0 42	0 48	0 52	12
24	0 10	0 20	0 29	0 38	0 45	0 52	0 57	06
5 00	0 11	0 21	0 31	0 40	0 48	0 56	1 2	00 7
06	0 11	0 22	0 33	0 42	0 51	0 59	1 6	24
12	0 12	0 23	0 34	0 44	0 54	1 2	1 10	18
18	0 12	0 24	0 35	0 46	0 56	1 5	1 14	12
24	0 12	0 24	0 36	0 47	0 57	1 7	1 17	06
6 00	0 12	0 24	0 36	0 48	0 59	1 9	1 19	00 6
	S	S	S	S	S	S	S	
	5 11 27	5 11 24	5 11 21	5 11 18	5 11 15	5 11 12	5 11 9	

The *Moons* secondary Æquations.

	0 6 3 A	0 6 6 A	0 6 9 A	0 6 12 A	0 6 15 A	0 6 18 A	0 6 21 A	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
6 00	0 12	0 24	0 36	0 48	0 59	1 9	1 19	00 6
06	0 12	0 24	0 36	0 48	1 00	1 10	1 20	24
12	0 12	0 24	0 36	0 48	1 00	1 11	1 22	18
18	0 12	0 24	0 36	0 48	1 00	1 11	1 22	12
24	0 12	0 24	0 36	0 48	0 59	1 11	1 22	06
7 00	0 11	0 23	0 35	0 47	0 58	1 10	1 21	00 5
06	0 11	0 22	0 34	0 45	0 57	1 9	1 20	24
12	0 10	0 21	0 32	0 44	0 55	1 7	1 18	18
18	0 10	0 20	0 31	0 42	0 53	1 4	1 15	12
24	0 9	0 19	0 29	0 40	0 50	1 1	1 12	06
8 00	0 8	0 18	0 27	0 37	0 48	0 58	1 9	00 4
06	0 8	0 16	0 25	0 35	0 44	0 55	1 5	24
12	0 7	0 15	0 23	0 32	0 41	0 51	1 1	18
18	0 6	0 13	0 21	0 29	0 38	0 47	0 56	12
24	0 5	0 12	0 18	0 26	0 34	0 42	0 51	06
9 00	0 4	0 10	0 16	0 23	0 30	0 38	0 46	00 3
06	0 4	0 8	0 14	0 20	0 26	0 33	0 41	24
12	0 3	0 7	0 11	0 16	0 22	0 29	0 35	18
18	0 2	0 5	0 9	0 13	0 18	0 24	0 30	12
24	0 1	0 4	0 6	0 10	0 14	0 19	0 24	06
10 00	0 1	0 2	0 4	0 7	0 10	0 14	0 19	00 2
06	0 1	0 1	0 2	0 4	0 7	0 10	0 14	24
12	0 S 0	0 S 0	0 S 0	0 1	0 3	0 6	0 9	18
18	0 1	0 2	0 2	0 S 1	0 S 0	0 1	0 4	12
24	0 2	0 3	0 3	0 4	0 3	0 S 2	0 S 1	06
11 00	0 2	0 4	0 5	0 6	0 6	0 6	0 5	00 1
06	0 2	0 5	0 6	0 8	0 9	0 9	0 9	24
12	0 3	0 5	0 8	0 9	0 11	0 12	0 13	18
18	0 3	0 6	0 9	0 11	0 13	0 15	0 16	12
24	0 3	0 6	0 9	0 12	0 15	0 17	0 19	06
12 00	0 3	0 7	0 10	0 13	0 16	0 19	0 21	00 0
	A	A	A	A	A	A	A	
	5 11 27	5 11 24	5 11 21	5 11 18	5 11 15	5 11 12	5 11 9	

The *Moons* secondary Æquations.

		0 6 21 S		0 6 24 S		0 6 27 S		1 7 0 S		1 7 3 S		1 7 6 S		1 7 9 S		
		°	′	°	′	°	′	°	′	°	′	°	′	°	′	
0	00	0	21	0	23	0	25	0	27	0	29	0	30	0	30	00 12
	06	0	23	0	26	0	28	0	31	0	33	0	35	0	36	24
	12	0	24	0	28	0	31	0	34	0	36	0	39	0	41	18
	18	0	25	0	29	0	32	0	36	0	39	0	42	0	45	12
	24	0	25	0	29	0	33	0	37	0	41	0	45	0	48	06
1	00	0	25	0	29	0	33	0	38	0	42	0	47	0	50	00 11
	06	0	24	0	28	0	33	0	38	0	42	0	47	0	52	24
	12	0	22	0	27	0	32	0	37	0	42	0	47	0	52	18
	18	0	20	0	25	0	30	0	35	0	40	0	46	0	52	12
	24	0	17	0	22	0	27	0	33	0	38	0	44	0	50	06
2	00	0	14	0	19	0	24	0	29	0	35	0	41	0	48	00 10
	06	0	11	0	15	0	20	0	25	0	31	0	38	0	44	24
	12	0	07	0	11	0	15	0	21	0	27	0	33	0	40	18
	18	0	02	0	06	0	10	0	15	0	21	0	27	0	34	12
	24	0A	03	0	01	0	05	0	10	0	15	0	21	0	28	06
3	00	0	08	0A	05	0A	01	0	03	0	08	0	14	0	21	00 9
	06	0	13	0	11	0	08	0A	04	0	01	0	06	0	13	24
	12	0	18	0	17	0	15	0	11	0A	07	0A	02	0	04	18
	18	0	24	0	24	0	22	0	19	0	15	0	10	0A	05	12
	24	0	30	0	30	0	29	0	27	0	24	0	20	0	14	06
4	00	0	36	0	37	0	36	0	35	0	33	0	29	0	24	00 8
	06	0	41	0	43	0	44	0	43	0	41	0	38	0	34	24
	12	0	47	0	50	0	51	0	51	0	50	0	48	0	45	18
	18	0	52	0	56	0	58	0	59	0	59	0	58	0	55	12
	24	0	57	1	02	1	05	1	07	1	08	1	07	1	05	06
5	00	1	02	1	07	1	11	1	14	1	16	1	16	1	15	00 7
	06	1	06	1	12	1	17	1	21	1	24	1	24	1	25	24
	12	1	10	1	17	1	23	1	27	1	31	1	32	1	34	18
	18	1	14	1	21	1	28	1	33	1	37	1	39	1	42	12
	24	1	17	1	25	1	32	1	38	1	43	1	45	1	49	06
6	00	1	19	1	28	1	36	1	42	1	48	1	51	1	56	00 6
		S		S		S		S		S		S		S		
		5 11	9	5 11	6	5 11	3	5 11	0	4 10	27	4 10	24	4 10	21	

The *Moons* secondary Æquations.

	0 6 21 A	0 6 24 A	0 6 27 A	1 7 0 A	1 7 3 A	1 7 6 A	1 7 9 A	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
6 00	1 19	1 28	1 36	1 42	1 48	1 53	1 56	00 6
06	1 20	1 30	1 48	1 46	1 53	1 58	2 02	24
12	1 22	1 32	1 40	1 49	1 56	2 02	2 07	18
18	1 22	1 32	1 42	1 51	1 58	2 05	2 11	12
24	1 22	1 33	1 42	1 52	2 00	2 07	2 14	06
7 00	1 21	1 32	1 42	1 52	2 00	2 08	2 15	00 5
06	1 20	1 31	1 41	1 51	2 00	2 08	2 16	24
12	1 18	1 29	1 39	1 49	1 59	2 07	2 15	18
18	1 15	1 26	1 37	1 47	1 57	2 06	2 14	12
24	1 12	1 23	1 34	1 44	1 54	2 03	2 11	06
8 00	1 09	1 19	1 30	1 40	1 50	1 59	2 08	00 4
06	1 05	1 15	1 25	1 35	1 45	1 54	2 03	24
12	1 01	1 11	1 20	1 30	1 40	1 49	1 58	18
18	0 56	1 06	1 14	1 24	1 34	1 43	1 52	12
24	0 51	1 00	1 09	1 18	1 27	1 36	1 45	06
9 00	0 46	0 54	1 03	1 12	1 20	1 29	1 38	00 3
06	0 41	0 48	0 57	1 05	1 13	1 21	1 29	24
12	0 35	0 42	0 50	0 58	1 05	1 13	1 21	18
18	0 30	0 36	0 43	0 50	0 57	1 05	1 12	12
24	0 24	0 30	0 36	0 43	0 49	0 56	1 03	06
10 00	0 19	0 24	0 29	0 35	0 41	0 47	0 54	00 2
06	0 14	0 18	0 23	0 28	0 33	0 38	0 44	24
12	0 09	0 12	0 16	0 20	0 25	0 30	0 35	18
18	0 04	0 06	0 09	0 13	0 17	0 21	0 26	12
24	0 S01	0 01	0 03	0 06	0 09	0 13	0 16	06
11 00	0 05	0 S04	0 S03	0 S01	0 02	0 04	0 08	00 1
06	0 09	0 09	0 08	0 07	0 S05	0 S03	0 S01	24
12	0 13	0 13	0 13	0 13	0 12	0 11	0 09	18
18	0 16	0 17	0 18	0 18	0 18	0 18	0 17	12
24	0 19	0 21	0 22	0 23	0 24	0 24	0 24	06
12 00	0 21	0 23	0 25	0 26	0 29	0 30	0 30	00 0
	A	A	A	A	A	A	A	
	5 11 9	5 11 6	5 11 3	5 11 0	4 10 27	4 10 24	4 10 21	

The *Moons* secondary Æquations.

	I 7 9 S	I 7 12 S	I 7 15 S	I 7 18 S	I 7 21 S	I 7 24 S	I 7 27 S	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
0 00	0 30	0 31	0 31	0 30	0 30	0 29	0 27	00 12
06	0 36	0 37	0 38	0 38	0 38	0 38	0 37	24
12	0 41	0 43	0 44	0 46	0 46	0 47	0 47	18
18	0 45	0 48	0 50	0 52	0 54	0 55	0 56	12
24	0 48	0 52	0 55	0 57	1 00	1 02	1 04	06
1 00	0 50	0 55	0 58	1 2	1 05	1 08	1 10	00 11
06	0 52	0 57	1 01	1 5	1 09	1 13	1 16	24
12	0 52	0 58	1 03	1 07	1 12	1 16	1 20	18
18	0 52	0 57	1 03	1 09	1 14	1 19	1 24	12
24	0 50	0 56	1 03	1 09	1 14	1 20	1 26	06
2 00	0 48	0 54	1 01	1 07	1 14	1 20	1 26	00 10
06	0 44	0 51	0 58	1 05	1 12	1 19	1 26	24
12	0 40	0 47	0 54	1 00	1 09	1 17	1 24	18
18	0 34	0 41	0 49	0 57	1 05	1 13	1 21	12
24	0 28	0 35	0 43	0 51	0 59	1 07	1 16	06
3 00	0 21	0 28	0 36	0 44	0 52	1 01	1 10	00 9
06	0 13	0 20	0 28	0 36	0 44	0 54	1 03	24
12	0 4	0 11	0 19	0 27	0 36	0 45	0 55	28
18	0A 5	0 2	0 09	0 17	0 26	0 35	0 45	12
24	0 14	0A 8	0A01	0 07	0 15	0 25	0 34	06
4 00	0 24	0 19	0 12	0A04	0 04	0 13	0 23	00 8
06	0 34	0 29	0 23	0 16	0A08	0 01	0 11	24
12	0 45	0 40	0 25	0 28	0 21	0A12	0A03	18
18	0 55	0 51	0 46	0 40	0 33	0 25	0 11	12
24	1 5	1 2	0 58	0 53	0 46	0 38	0 30	06
5 00	1 15	1 13	1 09	1 05	0 59	0 52	0 44	00 7
06	1 25	1 23	1 21	1 17	1 12	1 05	0 58	24
12	1 34	1 33	1 31	1 28	1 24	1 18	1 12	18
18	1 42	1 42	1 41	1 39	1 36	1 31	1 25	12
24	1 49	1 50	1 51	1 49	1 47	1 43	1 37	06
6 00	1 56	1 58	1 59	1 59	1 57	1 54	1 50	00 6
	S	S	S	S	S	S	S	
	4 10 21	4 10 18	4 10 15	4 10 12	4 10 9	4 10 6	4 10 3	

The *Moons* secondary Æquations.

	I 7 9 A	I 7 12 A	I 7 15 A	I 7 18 A	I 7 21 A	I 7 24 A	I 7 27 A	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
6 00	1 56	1 58	1 59	1 59	1 57	1 54	1 50	00 6
06	2 02	2 05	2 07	2 07	2 06	2 04	2 01	24
12	2 07	2 11	2 13	2 15	2 14	2 13	2 11	18
18	2 11	2 15	2 19	2 21	2 22	2 21	2 20	12
24	2 14	2 19	2 23	2 26	2 28	2 28	2 27	06
7 00	2 15	2 21	2 26	2 30	2 32	2 34	2 33	00 5
06	2 16	2 22	2 28	2 32	2 35	2 38	2 38	24
12	2 15	2 22	2 28	2 33	2 37	2 40	2 42	18
18	2 14	2 21	2 28	2 33	2 38	2 41	2 44	12
24	2 11	2 19	2 26	2 32	2 37	2 41	2 44	06
8 00	2 8	2 16	2 23	2 30	2 35	2 40	2 44	00 4
06	2 3	2 12	2 19	2 26	2 32	2 37	2 42	24
12	1 58	2 06	2 14	2 21	2 28	2 33	2 38	18
18	1 02	2 00	2 08	2 15	2 22	2 28	2 33	12
24	1 45	1 53	2 01	2 09	2 16	2 22	2 27	06
9 00	1 38	1 46	1 54	2 01	2 08	2 14	2 20	00 3
06	1 29	1 37	1 45	1 53	2 00	2 06	2 12	24
12	1 21	1 29	1 36	1 43	1 51	1 57	2 3	18
18	1 12	1 20	1 27	1 34	1 41	1 47	1 53	12
24	1 03	1 10	1 17	1 24	1 30	1 36	1 42	06
10 00	0 54	1 00	1 07	1 13	1 19	1 25	1 31	00 2
06	0 44	0 50	0 56	1 02	1 08	1 14	1 20	24
12	0 35	0 40	0 46	0 51	0 57	1 2	1 08	18
18	0 26	0 30	0 35	0 40	0 45	0 50	0 56	12
24	0 16	0 21	0 25	0 29	0 34	0 38	0 43	06
11 00	0 08	0 11	0 15	0 18	0 22	0 27	0 31	00 1
06	0 S 01	0 02	0 05	0 08	0 11	0 15	0 19	24
12	0 09	0 S 08	0 S 05	0 S 02	0 S 0	0 3	0 17	18
18	0 17	0 16	0 14	0 12	0 10	0 S 8	0 S 05	12
24	0 24	0 23	0 23	0 22	0 20	0 19	0 17	06
12 00	0 30	0 31	0 31	0 30	0 30	0 28	0 27	00 0
	A	A	A	A	A	A	A	
	4 10 21	4 10 18	4 10 15	4 10 12	4 10 9	4 10 6	4 10 3	

The *Moons* secondary Æquations.

Anomaly Eccentr.	1 7 27 S	2 8 0 S	2 8 3 S	2 8 6 S	2 8 9 S	2 8 12 S	2 8 15 S	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	
0 00	0 27	0 26	0 24	0 22	0 20	0 17	0 15	00 12
06	0 37	0 37	0 36	0 34	0 32	0 30	0 28	24
12	0 47	0 47	0 46	0 46	0 44	0 43	0 41	18
18	0 56	0 56	0 56	0 56	0 56	0 55	0 54	12
24	1 04	1 5	1 06	1 26	1 06	1 06	1 05	06
1 00	1 10	1 12	1 14	1 15	1 16	1 17	1 16	00 11
06	1 16	1 19	1 21	1 23	1 24	1 26	1 27	24
12	1 20	1 24	1 27	1 30	1 32	1 34	1 36	18
18	1 24	1 28	1 32	1 36	1 38	1 41	1 43	12
24	1 26	1 31	1 36	1 40	1 44	1 47	1 50	00
2 00	1 26	1 32	1 38	1 43	1 48	1 52	1 56	00 10
06	1 26	1 32	1 39	1 45	1 50	1 55	2 00	24
12	1 24	1 31	1 38	1 45	1 51	1 57	2 02	18
18	1 21	1 29	1 36	1 43	1 51	1 57	2 03	12
24	1 16	1 24	1 33	1 41	1 49	1 56	2 03	06
3 00	1 10	1 19	1 28	1 36	1 45	1 53	2 00	00 9
06	1 3	1 12	1 21	1 31	1 40	1 48	2 57	24
12	0 55	1 04	1 14	1 24	1 33	1 42	1 51	28
18	0 45	0 55	1 05	1 15	1 25	1 35	1 45	12
24	0 34	0 44	0 55	1 05	1 16	1 26	1 36	06
4 00	0 23	0 33	0 43	0 54	1 06	1 16	1 26	00 8
06	0 11	0 20	0 31	0 42	0 54	1 04	1 15	24
12	0A 03	0 07	0 18	0 29	0 40	0 51	1 02	18
18	0 11	0A 07	0 04	0 15	0 26	0 37	0 49	12
24	0 30	0 21	0A 11	0A 00	0 11	0 23	0 35	06
5 00	0 44	0 35	0 25	0 15	0A 04	0 08	0 20	00 7
06	0 58	0 10	0 40	0 30	0 19	0A 08	0 04	24
12	1 12	1 04	0 55	0 45	0 35	0 24	0A 12	18
18	1 25	1 18	1 50	1 01	0 51	0 40	0 28	12
24	1 37	1 31	1 24	1 15	1 06	0 56	0 45	06
6 00	1 50	1 44	1 37	1 29	1 21	1 11	0 00	00 6
	S 4 10 3	S 4 10 0	S 3 9 27	S 3 9 24	S 3 9 21	S 3 9 18	S 3 9 15	

The *Moons* secondary Æquations.

	I 7 27	2 8 0	2 8 3	2 8 6	2 8 9	2 8 12	2 8 15	
	A	*A*	*A*	*A*	*A*	*A*	*A*	
	o ′	o ′	o ′	o ′	o ′	o ′	o ′	
6 00	1 50	1 44	1 37	1 29	1 21	1 11	1 00	00 6
06	2 01	1 56	1 50	1 43	1 35	1 26	1 16	24
12	2 11	2 07	2 02	1 56	1 48	1 40	1 30	18
18	2 20	2 17	2 12	2 07	2 00	1 53	1 44	12
24	2 27	2 25	2 22	2 17	2 11	2 05	1 57	06
7 00	2 33	2 32	2 30	2 26	2 21	2 15	2 08	00 5
06	2 38	2 38	2 36	2 34	2 30	2 24	2 18	24
12	2 42	2 42	2 42	2 40	2 36	2 32	2 27	18
18	2 44	2 45	2 45	2 44	2 42	2 38	2 34	12
24	2 44	2 46	2 47	2 47	2 45	2 43	2 39	06
8 00	2 44	2 46	2 48	2 48	2 47	2 46	2 43	00 4
06	2 42	2 45	2 47	2 48	2 48	2 47	2 45	24
12	2 38	2 42	2 45	2 46	2 47	2 47	2 46	18
18	2 33	2 47	2 41	2 43	2 45	2 45	2 45	12
24	2 27	2 32	2 36	2 39	2 41	2 32	2 42	06
9 00	2 20	2 25	2 29	2 33	2 35	2 37	2 38	00 3
06	2 12	2 17	2 22	2 25	2 29	2 31	2 32	24
12	2 03	2 08	2 13	2 17	2 21	2 24	2 26	18
18	1 53	1 58	2 03	2 08	2 12	2 15	2 17	12
24	1 42	1 48	1 53	1 58	2 02	2 05	2 08	06
10 00	1 31	1 37	1 42	1 47	1 51	1 55	1 58	00 2
06	1 20	1 25	1 30	1 35	1 39	1 43	1 47	24
12	1 08	1 13	1 18	1 23	1 27	1 31	1 35	18
18	0 56	1 00	1 05	1 10	1 14	1 18	1 22	12
24	0 43	0 48	0 52	0 54	1 01	1 05	1 09	06
11 00	0 31	0 35	0 39	0 44	0 48	0 52	0 55	00
06	0 19	0 22	0 26	0 30	0 34	0 38	0 41	24
12	0 07	0 10	0 13	0 17	0 20	0 24	0 27	18
18	0 S 05	0 S 03	0 S 00	0 04	0 07	0 10	0 13	12
24	0 17	0 14	0 12	0 S 10	0 S 07	0 S 04	0 S 01	06
12 00	0 27	0 26	0 24	0 22	0 20	0 17	0 15	00 0
	A	*A*	*A*	*A*	*A*	*A*	*A*	
	4 10 3	4 10 0	3 9 27	3 9 24	3 9 21	3 9 18	3 9 15	

The Moons secondary Equations.

	2 8 15 S	2 8 18 S	2 8 21 S	2 8 24 S	2 8 27 S	3 9 0 S	
	° ′	° ′	° ′	° ′	° ′	° ′	
0 00	0 15	0 12	0 09	0 06	0 03	0 00	00 12
06	0 28	0 26	0 23	0 20	0 18	0 15	24
12	0 41	0 39	0 37	0 34	0 32	0 29	18
18	0 54	0 52	0 50	0 48	0 46	0 43	12
24	1 05	1 04	1 3	1 01	0 59	0 57	06
1 00	1 16	1 16	1 15	1 14	1 12	1 10	00 11
06	1 27	1 27	1 26	1 26	1 25	1 23	24
12	1 36	1 36	1 37	1 37	1 36	1 35	18
18	1 43	1 45	1 46	1 47	1 46	1 46	12
24	1 50	1 53	1 54	1 55	1 56	1 56	06
2 00	1 56	1 59	2 01	2 03	2 04	2 05	00 10
06	2 00	2 03	2 07	2 09	2 11	2 12	24
12	2 02	2 07	2 11	2 14	2 17	2 19	18
18	2 03	2 09	2 13	2 18	2 21	2 24	12
24	2 03	2 09	2 15	2 20	2 24	2 27	06
3 00	2 00	2 08	2 14	2 20	2 25	2 29	00 9
06	1 57	2 05	2 12	2 18	2 24	2 30	24
12	1 51	2 00	2 9	2 15	2 22	2 28	18
18	1 45	1 54	2 3	2 11	2 18	2 25	12
24	1 36	1 46	1 56	2 05	2 13	2 20	06
4 00	1 26	1 37	1 47	1 57	2 06	2 14	00 8
06	1 15	1 26	1 37	1 47	1 57	2 06	24
12	1 02	1 14	1 25	1 36	1 47	1 57	18
18	0 49	1 01	1 17	1 24	1 35	1 46	12
24	0 35	0 47	0 59	1 11	1 22	1 33	06
5 00	0 20	0 32	0 44	0 56	1 08	1 20	00 7
06	0 4	0 16	0 28	0 41	0 53	1 05	24
12	0A12	0A00	0 12	0 25	0 37	0 50	18
18	0 28	0 16	0A04	0 08	0 21	0 33	12
24	0 45	0 33	0 21	0A08	0 04	0 17	06
6 00	1 00	0 49	0 37	0 25	0A13	0 00	00 6
	S	S	S	S	S	A	
	3 9 15	3 9 12	3 9 9	3 9 6	3 9 3	3 9 0	

The Moons secondary Æquations.

	8 2 8 15 A	2 18 8 A	2 21 8 A	2 24 8 A	2 27 8 A	3 0 9 A	
	° ′	° ′	° ′	° ′	° ′	° ′	
6 00	1 00	0 49	0 37	0 25	0 13	0 00	00 6
06	1 16	1 05	0 54	0 42	0 29	0 17	24
12	1 30	1 20	1 09	0 58	0 46	0 33	18
18	1 44	1 35	1 24	1 13	1 02	0 50	12
24	1 57	1 48	1 38	1 28	1 17	1 05	06
7 00	2 08	2 00	1 51	1 41	1 31	1 20	00 5
06	2 18	2 11	2 03	1 54	1 44	1 33	24
12	2 27	2 20	2 13	2 05	1 56	1 46	18
18	2 34	2 28	2 22	2 14	2 06	1 57	12
24	2 39	2 35	2 29	2 22	2 15	2 06	06
8 00	2 43	2 39	2 34	2 29	2 22	2 14	00 4
06	2 45	2 42	2 38	2 33	2 27	2 20	24
12	2 46	2 44	2 40	2 37	2 31	2 25	18
18	2 45	2 43	2 41	2 38	2 33	2 28	12
24	2 42	2 41	2 40	2 37	2 34	2 30	06
9 00	2 38	2 38	2 37	2 35	2 33	2 29	00 3
06	2 32	2 33	2 33	2 32	2 30	2 27	24
12	2 26	2 27	2 27	2 27	2 26	2 24	18
18	2 17	2 19	2 20	2 21	2 20	2 19	12
24	2 08	2 11	2 12	2 13	2 13	2 12	06
10 00	1 58	2 01	2 03	2 04	2 05	2 05	00 2
06	1 47	1 50	1 52	1 54	1 55	1 56	24
12	1 35	1 38	1 41	1 43	1 45	1 46	18
18	1 22	1 25	1 28	1 31	1 33	1 35	12
24	1 09	1 12	1 16	1 18	1 21	1 23	06
11 00	0 55	0 59	1 02	1 05	1 08	1 10	00 1
06	0 41	0 45	0 48	0 51	0 54	0 57	24
12	0 27	0 31	0 34	0 37	0 40	0 43	18
18	0 13	0 16	0 20	0 23	0 26	0 29	12
24	0 S 01	0 02	0 05	0 08	0 12	0 15	06
12 00	0 15	0 S 12	0 S 09	0 S 06	0 S 03	0 00	00 0
	A	A	A	A	A	S	
	3 9 15	3 9 12	3 9 9	3 9 6	3 9 3	3 9 0	

A Table of the Æquation of the Nodes.

Diff. ☉ & ☽	Sig. 0 6 Æq. Nod Add.			Scrup. prop.		Sig. 1 7 Æq. Nod Add.			Scrup. prop.		Sig. 2 8 Æq. Nod Add.			Scrup. prop.		
		′	″	′	″	°	′	″	′	″	°	′	″	′	″	
0	0	00	00	0	00	1	33	28	15	22	1	30	32	45	20	30
1	0	03	50	0	01	1	35	12	16	18	1	28	34	46	13	29
2	0	07	39	0	04	1	36	47	17	15	1	26	30	47	05	28
3	0	11	27	0	09	1	38	12	18	13	1	24	21	47	54	27
4	0	15	14	0	16	1	39	31	19	11	1	22	06	48	43	26
5	0	19	00	0	26	1	40	42	20	10	1	19	45	49	31	25
6	0	22	46	0	41	1	41	45	21	09	1	17	18	50	19	24
7	0	26	29	0	56	1	42	44	22	09	1	14	48	51	04	23
8	0	30	9	1	13	1	43	38	23	10	1	12	09	54	47	22
9	0	33	47	1	32	1	44	29	24	11	1	09	27	52	28	21
10	0	37	23	1	53	1	45	08	25	13	1	06	41	53	08	20
11	0	40	56	2	16	1	45	34	26	16	1	03	49	53	46	19
12	0	44	26	2	41	1	45	50	27	19	1	00	51	54	23	18
13	0	47	52	3	08	1	45	56	28	22	0	57	50	54	59	17
14	0	51	14	3	38	1	45	59	29	25	0	54	47	55	33	16
15	0	54	32	4	10	1	46	00	30	28	0	51	42	56	06	15
16	0	57	47	4	43	1	45	53	31	30	0	48	32	56	36	14
17	1	00	56	5	18	1	45	36	32	33	0	45	18	57	03	13
18	1	04	00	5	54	1	45	13	33	35	0	42	00	57	28	12
19	1	06	59	6	32	1	44	41	34	37	0	38	40	57	52	11
20	1	09	53	7	12	1	44	00	35	39	0	35	18	58	14	10
21	1	12	42	7	54	1	43	10	36	41	0	31	53	58	35	9
22	1	15	25	8	38	1	42	14	37	42	0	28	26	58	53	8
23	1	18	02	9	24	1	41	10	38	43	0	24	57	59	09	7
24	1	20	33	10	13	1	39	59	39	43	0	21	26	59	22	6
25	1	22	58	11	2	1	38	42	40	41	0	17	54	59	33	5
26	1	25	16	11	51	1	37	18	41	38	0	14	21	59	43	4
27	1	27	28	12	41	1	35	46	42	35	0	10	46	59	50	3
28	1	29	34	13	33	1	34	08	43	31	0	07	11	59	55	2
29	1	31	34	14	27	1	32	23	44	26	0	03	36	59	58	1
30	1	33	28	15	22	1	30	32	45	20	0	00	00	60	00	0
	Sub. Sig.		11 5			Sub. Sig.		10 4			Sub. Sig.		9 3			

A Table of the *Moons* Latitude.

Dist. ☽ & ☊	Sig. 0 6 Latit. ☽			Ecce. Add.		Sig. 1 7 Latit. ☽			Eccef Add.		Sig. 2 8 Latit. ☾			Eccef Add.		
	°	′	″	′	″	°	′	″	′	″	°	′	″	′	″	
0	0	00	00	0	00	2	29	06	9	28	4	18	26	16	25	30
1	0	05	13	0	20	2	33	36	9	45	4	20	59	16	35	29
2	0	10	25	0	40	2	38	03	10	02	4	23	28	16	45	28
3	0	15	36	0	59	2	42	26	10	18	4	25	53	16	55	27
4	0	20	47	1	19	2	46	46	10	35	4	28	13	17	04	26
5	0	25	58	1	39	2	51	04	10	51	4	30	28	17	12	25
6	0	31	09	1	59	2	55	19	11	07	4	32	38	17	20	24
7	0	36	19	2	19	2	59	30	11	23	4	34	43	17	28	23
8	0	41	29	2	38	3	3	38	11	39	4	36	43	17	36	22
9	0	46	38	2	57	3	7	43	11	55	4	38	38	17	43	21
10	0	41	46	3	17	3	11	44	12	11	4	40	27	17	51	20
11	0	56	53	3	36	3	15	42	12	26	4	42	11	17	58	19
12	1	01	59	3	55	3	19	36	12	41	4	43	50	18	05	18
13	1	07	04	4	15	3	23	26	12	56	4	45	23	18	1	17
14	1	12	08	4	34	3	27	13	13	10	4	46	52	18	18	16
15	1	17	10	4	53	3	30	56	13	24	4	48	18	18	23	15
16	1	22	11	5	13	3	34	35	13	38	4	49	35	18	27	14
17	1	27	10	5	32	3	38	10	13	52	4	50	49	18	31	13
18	1	32	08	5	51	3	41	42	14	05	4	51	58	18	34	12
19	1	37	04	6	10	3	45	7	14	18	4	53	00	18	38	11
20	1	41	58	6	29	3	48	30	14	31	4	53	57	18	42	10
21	1	46	51	6	47	3	51	52	14	44	4	54	49	18	45	9
22	1	51	41	7	06	3	55	09	14	57	4	55	36	18	48	8
23	1	56	30	7	24	3	58	19	15	09	4	56	17	18	51	7
24	2	01	17	7	42	4	01	23	15	21	4	56	52	18	53	6
25	2	06	01	8	00	4	04	24	15	32	4	57	22	18	55	5
26	2	10	43	8	18	4	07	21	15	43	4	57	46	18	56	4
27	2	15	23	8	35	4	10	15	15	54	4	58	06	18	57	3
28	2	20	00	8	53	4	13	05	16	05	4	58	18	18	58	2
29	2	24	34	9	11	4	15	47	16	15	4	58	26	18	59	1
30	2	29	06	9	28	4	18	26	16	25	4	58	30	19	00	0
				Add.					Add.					Add.		
	Sig. 11 5					Sig. 10 4					Sig. 9 3					

Reduct. Orbit. ☽

	0 6 Sub.		1 7 Sub.		2 8 Sub.		
	′	″	′	″	′	″	
0	0	00	6	06	6	05	30
1	0	15	6	12	5	57	29
2	0	30	6	18	5	48	28
3	0	45	6	24	5	39	27
4	0	59	6	29	5	30	26
5	1	13	6	35	5	21	25
6	1	27	6	40	5	12	24
7	1	42	6	44	5	01	23
8	1	56	6	47	4	51	22
9	2	10	6	51	4	40	21
10	2	24	6	54	4	29	20
11	2	38	6	56	4	18	19
12	2	52	6	57	4	07	18
13	3	06	6	58	3	55	17
14	3	19	6	59	3	42	16
15	3	32	7	0	3	31	15
16	3	43	6	59	3	18	14
17	3	56	6	58	3	05	13
18	4	08	6	57	2	51	12
19	4	19	6	56	2	38	11
20	4	30	6	54	2	23	10
21	4	41	6	51	2	09	9
22	4	52	6	47	1	55	8
23	5	02	6	44	1	41	7
24	5	13	6	40	1	26	6
25	5	22	6	35	1	12	5
26	5	31	6	28	0	58	4
27	5	40	6	23	0	45	3
28	5	49	6	17	0	30	2
29	5	58	6	11	0	15	1
30	6	06	6	05	0	00	0
	Add		Add		Add		
	11	5	10	4	0	2	

The difference of the true ☉ or ☽ from the middle of the Obscuration.

Lat☽		Diff.		dif. S.
°	′	′	″	′ ″
0	5	0	26	
0	10	0	52	
0	15	1	18	
0	20	1	45	
0	25	2	11	
0	30	2	37	
0	35	3	03	
0	40	3	29	
0	45	3	55	
0	50	4	21	
0	55	4	47	
1	00	5	14	
1	05	5	40	
1	10	6	06	
1	15	6	33	
1	20	6	59	
1	25	7	25	
1	30	7	51	
1	35	8	17	
1	40	8	43	

Sept. Desc. } Add.
Merid. Asc. }

Sept. Asc. } Sub.
Merid. Desc. }

A Table of the mean Lunations.

anni	D	H	′	″
1	10	15	11	22
2	21	06	22	44
3	02	08	50	03
B 4	14	00	01	25
5	24	15	12	47
6	05	17	40	06
7	16	08	51	28
B 8	28	00	02	50
9	09	02	30	09
10	19	17	41	31
11	00	20	08	50
B 12	12	11	20	12
13	23	02	31	34
14	04	04	58	53
15	14	20	10	15
B 16	26	11	21	37
17	07	13	48	56
18	18	05	00	18
19	28	20	11	40
B 20	10	22	38	59
40	21	21	17	58
60	03	07	12	55
80	14	05	51	54
100	25	04	30	53
200	20	20	17	44
300	16	12	04	35
400	12	03	51	25
500	07	19	38	16
600	03	11	25	07
700	28	15	56	01
800	24	07	42	51
900	19	23	29	42
1000	15	15	16	33
2000	01	17	49	3
3000	17	09	5	36

Mens. comp.	Communis. D	H	′	″	Bissext. D	H	′	″
Janua.	1	11	15	56	1	11	15	56
Febru.	29	11	15	56	0	22	31	53
Mart.	1	9	47	50	2	09	47	50
April.	1	21	03	47	2	21	3	47
Maj.	3	8	19	44	4	08	19	44
Jun.	3	19	35	41	4	19	35	41
Jul.	5	6	51	37	6	06	51	37
August.	6	18	07	34	7	18	07	34
Septem.	7	05	23	31	8	05	23	31
Octob.	8	16	39	28	9	16	39	28
Novem.	9	03	55	25	10	03	55	25
Decem.	10	15	11	22	11	15	11	22

Canonion Syzygiarum.

	☌ D	H	′	″	☍ D	H	′	″
I	29	12	44	03	14	18	22	02
II	59	01	28	06	44	07	06	05
III	88	14	12	09	73	19	50	08
IV	118	02	56	12	103	08	34	11
V	147	15	40	15	132	21	18	13
VI	177	04	24	18	162	10	02	17
VII	206	17	08	22	191	22	46	20
VIII	236	05	52	25	221	11	30	24

Epochæ.

Compl. Christi	D	H	′	″
1600	17	18	42	24
1620	07	08	40	01
1640	18	07	19	00
1660	29	15	17	59
	10	15	52	55

The Horizontall Parallaxes, Semi-diameters, and hourly motions of the Sun and Moon.

Hours	Par Hor ☉	Sem. Conj. Umb.	Sem. ☉	Hor ☉	Par. Hor. ☽	Sem. ☽	Hor. ☽	Hourly ☽
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
0 00	2 19	14 50	16 09	2 23	55 44	15 35	29 40	00 12
06	2 19	14 50	16 09	2 23	55 45	15 36	29 41	24
12	2 19	14 50	16 09	2 23	55 47	15 37	29 43	18
18	2 19	14 51	16 10	2 23	55 51	15 38	29 48	12
24	2 19	14 51	16 10	2 23	55 57	15 39	29 56	06
1 00	2 19	14 52	16 11	2 24	56 03	15 40	30 06	00 11
06	2 19	14 53	16 12	2 24	56 10	15 42	30 18	24
12	2 19	14 55	16 14	2 24	56 18	15 44	30 32	18
18	2 20	14 55	16 15	2 25	56 29	15 47	30 49	12
24	2 20	14 56	16 16	2 25	56 40	15 50	31 08	06
2 00	2 20	14 58	16 18	2 25	56 52	15 54	31 30	00 10
06	2 20	14 59	16 19	2 26	57 06	15 58	31 52	24
12	2 21	15 00	16 21	2 26	57 19	16 02	32 15	18
18	2 21	15 01	16 22	2 27	57 34	16 06	32 39	12
24	2 21	15 03	16 24	2 28	57 51	16 10	33 04	06
3 00	2 21	15 06	16 27	2 28	58 05	16 14	33 29	00 9
06	2 22	15 07	16 29	2 29	58 21	16 19	33 54	24
12	2 22	15 09	16 31	2 29	58 38	16 24	34 18	18
18	2 22	15 11	16 33	2 30	58 55	16 28	34 42	12
24	2 22	15 13	16 35	2 30	59 11	16 32	35 04	06
4 00	2 23	15 14	16 37	2 31	59 26	16 36	35 35	00 8
06	2 23	15 15	16 38	2 31	59 41	16 40	35 58	24
12	2 23	15 16	16 39	2 32	59 54	16 43	36 20	18
18	2 23	15 17	16 40	2 32	60 07	16 47	36 42	12
24	2 23	15 18	16 41	2 32	60 17	16 50	37 03	06
5 00	2 24	15 18	16 42	2 33	60 26	16 53	37 24	00 7
06	2 24	15 19	16 43	2 33	60 35	16 55	37 40	24
12	2 24	15 20	16 44	2 33	60 41	16 57	37 54	18
18	2 24	15 20	16 44	2 33	60 46	16 58	38 03	12
24	2 24	15 21	16 45	2 33	60 50	16 59	38 08	06
6 00	2 24	15 21	16 45	2 33	60 51	17 00	38 10	00 6

A Table of the Suns Parallaxes in the Circle of Altitude.

	Par. ⊙		Ecc. add.
	′	″	″
0	2	19	5
1	2	19	5
2	2	19	5
3	2	19	5
4	2	19	5
5	2	19	5
6	2	18	5
7	2	18	5
8	2	18	5
9	2	18	5
10	2	17	5
11	2	17	5
12	2	16	5
13	2	15	5
14	2	15	5
15	2	14	5
16	2	13	5
17	2	13	5
18	2	12	5
19	2	11	5
20	2	11	5
21	2	10	5
22	2	9	5
23	2	8	5
24	2	7	5
25	2	6	5
26	2	5	4
27	2	4	4
28	2	3	4
29	2	2	4
30	2	1	4

	Par. ⊙		Ecc. add.
	′	″	″
30	2	1	4
31	1	59	4
32	1	57	4
33	1	56	4
34	1	54	4
35	1	53	4
36	1	52	4
37	1	50	4
38	1	49	4
39	1	47	4
40	1	46	4
41	1	44	4
42	1	42	4
43	1	41	4
44	1	39	4
45	1	38	4
46	1	36	3
47	1	34	3
48	1	32	3
49	1	31	3
50	1	29	3
51	1	27	3
52	1	25	3
53	1	23	3
54	1	22	3
55	1	19	3
56	1	17	3
57	1	15	3
58	1	13	3
59	1	11	3
60	1	9	2

	Par. ⊙		Ecc. add.
	′	″	″
60	1	9	2
61	1	6	2
62	1	4	2
63	1	2	2
64	1	0	2
65	0	58	2
66	0	56	2
67	0	54	2
68	0	52	2
69	0	49	2
70	0	47	2
71	0	45	2
72	0	43	1
73	0	40	1
74	0	38	1
75	0	36	1
76	0	33	1
77	0	31	1
78	0	29	1
79	0	26	1
80	0	24	1
81	0	22	1
82	0	19	1
83	0	17	1
84	0	15	0
85	0	12	0
86	0	9	0
87	0	7	0
88	0	5	0
89	0	2	0
90	0	0	0

A Table of the Moons Parallaxes in the Circle of Altitude.

Parallaxes Horizontales.

	55		56		57		58		59		60		61	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″
0	55	00	56	00	57	00	58	00	59	00	60	00	61	00
1	54	59	55	59	56	59	57	59	58	59	59	59	60	59
2	54	59	55	59	56	59	57	59	58	59	59	59	60	59
3	54	57	55	57	56	57	57	58	58	57	59	57	60	57
4	54	54	55	54	56	54	57	55	58	54	59	54	60	54
5	54	51	55	51	56	51	57	51	58	50	59	50	60	50
6	54	47	55	47	56	47	57	47	58	46	59	46	60	45
7	54	42	55	42	56	42	57	42	58	41	59	40	60	40
8	54	36	55	35	56	35	57	35	58	34	59	33	60	32
9	54	29	55	27	56	27	57	27	58	26	59	24	60	24
10	54	19	55	18	56	18	57	18	58	16	59	14	60	14
11	54	09	55	09	56	09	57	09	58	07	59	04	60	04
12	53	59	54	59	55	58	56	58	57	56	58	53	59	52
13	53	47	55	47	55	46	56	46	57	44	58	41	59	40
14	53	35	54	34	55	33	56	32	57	30	58	28	59	26
15	53	21	54	20	55	18	56	17	57	15	58	14	59	12
16	53	06	54	05	55	03	56	01	57	00	57	58	58	56
17	52	50	53	49	54	47	55	45	56	42	57	41	58	39
18	52	35	53	33	54	30	55	28	56	25	57	23	58	21
19	52	18	53	16	54	13	55	10	56	07	57	03	58	00
20	51	59	52	57	53	53	54	49	55	46	56	43	57	40
21	51	39	52	37	53	32	54	28	55	25	56	22	57	19
22	51	18	52	16	53	11	54	07	55	04	56	00	56	57
23	50	58	51	55	52	50	53	45	54	41	55	36	56	32
24	50	33	51	33	52	26	53	20	54	16	55	11	56	07
25	50	12	51	10	52	02	52	55	53	51	54	46	55	41
26	49	48	50	45	51	37	52	30	53	25	54	20	55	15
27	49	22	50	18	51	12	52	04	52	59	53	53	54	47
28	48	56	49	51	50	14	51	37	52	31	53	25	54	18
29	48	29	49	23	50	16	51	09	52	02	52	26	53	10
30	48	02	48	55	49	47	50	40	51	32	52	25	53	18

A Table of the Moons Parallaxes in the Circle of Altitude.

Parallaxes Horizontales.

	55		56		57		58		59		60		61	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″
30	48	02	48	55	49	47	50	40	51	32	52	25	53	18
31	47	31	48	25	49	17	50	10	51	02	51	53	52	45
32	47	01	47	54	48	46	49	38	50	30	51	21	52	12
33	46	31	47	22	48	13	49	05	49	57	50	48	51	39
34	46	00	46	50	47	41	48	32	49	23	50	14	51	05
35	45	27	46	17	47	08	47	58	48	49	49	40	50	31
36	44	54	45	43	46	33	47	23	48	14	49	04	49	54
37	44	20	45	08	45	58	46	48	47	38	48	27	49	16
38	43	43	44	32	45	22	46	12	47	00	47	49	48	37
39	43	09	43	56	44	45	45	34	46	22	47	10	47	58
40	42	34	43	20	44	08	44	56	45	44	46	31	47	18
41	41	57	42	43	43	30	44	17	45	04	45	51	46	38
42	41	19	45	05	42	50	43	36	44	23	45	09	45	55
43	40	41	41	26	42	10	42	54	43	40	44	26	45	12
44	40	02	40	46	41	29	42	12	42	57	43	42	44	27
45	39	21	40	05	40	47	41	30	42	14	42	58	43	40
46	38	39	39	23	39	55	40	48	41	31	42	13	42	56
47	37	57	38	40	39	22	40	04	40	43	41	27	42	09
48	37	15	37	57	38	38	39	19	40	00	40	41	41	22
49	36	32	37	13	37	54	38	34	39	14	39	54	40	34
50	35	48	36	28	37	08	37	48	38	27	39	07	39	46
51	35	04	35	42	36	22	37	02	37	40	38	18	38	56
52	34	18	35	56	35	35	36	14	36	51	37	28	38	06
53	33	33	34	10	34	47	35	25	36	01	36	37	37	14
54	32	46	33	23	33	59	34	35	35	11	35	46	36	23
55	31	59	32	35	33	10	33	45	34	20	34	55	35	31
56	31	11	31	46	32	21	32	55	33	29	34	03	34	38
57	30	21	30	56	31	31	32	05	32	38	33	10	33	45
58	29	32	30	06	30	41	31	13	31	45	32	16	32	0
59	28	43	29	16	29	51	30	20	30	51	31	22	31	55
60	27	53	28	25	28	57	29	27	29	58	30	28	31	00

A Table of the Moons Parallaxes in the Circle of Altitude.

Parallaxes Horizontales.

	55		56		57		58		59		60		61	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″
60	27	53	28	25	28	57	29	27	29	58	30	28	31	00
61	27	03	27	33	28	03	28	34	29	04	29	33	30	03
62	26	11	26	40	27	09	27	40	28	09	28	37	29	06
63	25	19	25	47	26	15	26	45	27	13	27	41	28	09
64	24	27	24	54	25	21	25	49	26	16	26	44	27	11
65	23	34	24	01	24	27	24	54	25	20	25	47	26	13
66	22	41	23	07	23	32	23	58	24	23	24	49	25	14
67	21	48	22	12	22	36	23	1	23	25	23	50	24	14
68	20	54	21	17	21	40	22	4	22	27	22	51	23	14
69	20	00	20	22	20	44	21	7	21	29	21	52	22	14
70	19	05	19	26	19	47	20	10	20	31	20	52	21	13
71	18	10	18	30	18	50	19	12	19	32	19	51	20	12
72	17	15	17	34	17	53	18	14	18	33	18	50	19	09
73	16	20	16	37	16	55	17	15	17	33	17	49	18	07
74	15	24	15	40	15	57	16	16	16	33	16	48	17	05
75	14	28	14	43	14	59	15	16	15	32	15	47	16	03
76	13	31	13	46	14	1	14	16	14	31	14	45	15	00
77	12	34	12	48	13	2	13	16	13	30	13	43	13	57
78	11	36	11	50	12	3	12	16	12	29	12	40	12	53
79	10	39	10	51	11	3	11	16	11	28	11	37	11	49
80	9	42	9	52	10	3	10	15	10	26	10	34	10	45
81	8	44	8	53	9	2	9	13	9	23	9	31	9	40
82	7	46	7	54	8	2	8	12	8	20	8	28	8	36
83	6	48	6	55	7	2	7	10	7	17	7	25	7	31
84	5	50	5	56	6	2	6	8	6	15	6	22	6	28
85	4	51	4	57	5	2	5	7	5	13	5	19	5	24
86	3	53	3	58	4	2	4	6	4	11	4	16	4	20
87	2	55	2	59	3	2	3	4	3	8	3	12	3	15
88	1	57	2	0	2	2	2	3	2	5	2	8	2	10
89	0	59	1	0	1	1	1	2	1	3	1	4	1	5
90	0	00	0	0	0	0	0	0	0	0	0	0	0	0

A Catalogue of the more notable fixed Starres, with their Longitude, Latitude, and Magnitude for the Year 1650 Compleat.

Circa Polum Boreum.

Nomina Stellarum.	Longit.			Latit.			Mag.
	°		′	°	′		
Polaris	♊ 2	3	45	66	2	B	2
Superior duarum in □ *præc.*	♌ 7	59		72	51	B	2
Earundem inferior	♌ 15	23		75	23	B	3
Vicinissima Polo	♊ 27	12		63	55	B	6
Superior præced. in □ *majori*	♌ 10	16		49	40	B	2
Inferior ejusdem □	♌ 14	26		45	3	B	2
Superior sequentium Quadrati	♌ 26	8		51	37	B	2
Inferior earundem	♌ 25	27		47	6	B	2
Antepenultima Caudæ	♍ 3	52		54	18	B	2
Penultima Caudæ Ursæ major.	♍ 10	38		56	22	B	2
Ultima Caudæ Ursæ major.	♍ 21	58		54	25	B	2
Lingua Draconis	♏ 18	38		76	17	B	4
Lucida Capitis Draconis	♈ 17	46		81	53	B	5
Cingulus Cephei	♉ 0	55		71	7	B	3
Arcturus	♑ 19	21		31	2	B	1
Lucida Coronæ	♍ 7	21		44	23	B	2
Caput Herculis	♐ 11	13		37	23	B	3
Lucida Lyræ	♒ 10	25		61	47	B	1
Cauda Cygni	♓ 0	36		59	56	B	2
Pectus Cassiopeiæ	♉ 3	0		46	35	B	3
Caput Medusæ	♉ 21	19		22	22	B	3
Dextrum Persei latus	♉ 26	59		30	5	B	2
Capella	♊ 16	58		22	50	B	1
In capite Ophiuchi	♐ 17	32		35	57	B	3

Nomina Stellarum.	Longit.		Latit.			Mag.
	°	′	°	′		
In medio nexu colli Serpentis	♍ 17	12	25	35	B	2
Lucida in Scapulis Aquilæ	♑ 26	51	29	21	B	2
Lucida Caudæ Delphini	♒ 9	14	29	8	B	3
Os Pegasi	♒ 27	4	22	7	B	3
Prima Alæ Pegasi	♓ 18	39	19	26	B	2
Eductio cruris Pegasi	♓ 24	31	31	7	B	2
Caput Andromedæ	♈ 9	29	25	42	B	2
Australi. in Cing. Andrem.	♈ 25	31	25	59	B	3
In Astr. ped. Andrem, luc.	♉ 9	21	27	46	B	2
In apice Trianguli	♉ 2	1	16	49	B	4

Circa Zodiacum.

Prima Arietis	♈ 28	19	7	8	B	4
Lucida in vertice Capit. ♈	♉ 2	48	9	57	B	3
Oculus Tauri Australis	♊ 4	55	5	31	A	1
Oculus Tauri Borealis	♊ 3	35	2	36	A	3
Lucida Pleiadum	♉ 25	6	4	0	B	5
Superius caput Gem.	♋ 15	23	10	2	B	3
Inferius caput Gem.	♋ 18	25	6	38	B	2
Lucida pedis Gemi.	♋ 4	13	6	48	A	3
In brachio Australi Canc.	♌ 8	46	5	8	A	3
Lucida colli Leonis	♌ 24	41	8	47	B	3
Cor Leonis	♌ 24	59	0	26	B	1
Extremitas caudæ Leonis	♍ 16	45	12	18	B	3
Vindemiatrix	♎ 5	06	16	15	B	3
Spica Virginis	♍ 18	58	1	59	A	1
Lanx Australis	♏ 10	13	0	26	B	2
Lanx Borea	♏ 14	30	8	35	B	2
Suprema in fronte Scorpii	♏ 28	18	1	5	B	2
Cor Scorpii	♐ 4	55	4	7	A	1

Nomina Stellarum.	Longit. ° ′	Latit. ° ′		Mag.
Precedens trium in capit. ♐	♍ 8 39	1 44	B	4
Borealiss. in corun prec. ♍	♍ 29 00	7 2	B	3
Sequens lucid. in cauda ♍	♒ 18 42	2 29	A	3
Sinister humerus Aquarii	♒ 17 33	8 42	B	3
Crus Aquarii. Scheat	♓ 4 4	8 10	A	3
In effusione ♒ Fomahant	♒ 28 54	21 0	A	1
In ore Piscis Austrini	♓ 13 44	9 4	B	5
Lucid. in nexu amborum linorum	♈ 24 30	9 4	A	3

Polum Australinum Versus.

Lucida Mandibulæ Ceti	♉ 10 13	7 50	A	4
Lucida Caudæ Ceti	♓ 27 38	20 47	A	2
Lucidus Humerus Orionis	♊ 13 54	16 6	A	2
Media Cinguli Orionis	♊ 18 36	24 33	A	2
Sinister Hec Orionis	♊ 11 59	31 11	A	1
Supra pedem Orionis in fluvio	♊ 10 24	27 54	A	3
Ultima Caudæ Leporis	♊ 27 4	38 26	A	4
Sirius	♋ 9 18	39 30	A	1
Procyon	♋ 21 1	15 57	A	2
In suprema puppi Argo	♌ 6 36	43 18	A	3
Lucida Hydræ	♍ 22 28	22 24	A	1

In Hemisphærio Australino.

Lucida capitis gruis	♒ 12 34	22 50	A	2
In eductione caudæ gruis	♒ 17 35	34 36	A	2
Lucida colli Phœnicis	♓ 9 53	40 10	A	2
Caput Indi	♍ 28 18	32 30	A	4
Caput Pavonis	♍ 17 27	36 0	A	2
Caput Passeris	♎ 19 1	72 26	A	5
In extremo rostro Anseris	♒ 4 36	45 55	A	3
Caput Hydri	♓ 4 41	64 5	A	3

Tycho's Table of Refractions.

Alt.	☉		☽		✶✶	
	′	″	′	″	′	″
0	34	0	33	0	30	00
1	26	0	25	0	21	30
2	20	0	20	0	15	30
3	17	0	17	0	12	30
4	15	30	15	20	11	0
5	14	30	14	20	10	0
6	13	30	13	50	9	0
7	12	45	12	45	8	15
8	11	15	12	00	6	45
9	10	30	11	20	6	0
10	10	00	10	45	5	30
11	9	30	10	10	5	0
12	9	00	9	35	4	30
13	8	30	9	00	4	0
14	8	00	8	30	3	30
15	7	30	8	00	3	0
16	7	00	7	30	2	30
17	6	30	7	00	2	0
18	5	45	6	30	1	15
19	5	00	6	00	0	30
20	4	30	5	30	0	0
21	4	00	5	00	0	0
22	3	30	4	35	0	0

Alt.	☉		☽	
	′	″	′	″
23	3	10	4	10
24	2	50	3	45
25	2	30	3	20
26	2	15	3	00
27	2	0	2	40
28	1	45	2	20
29	1	35	2	00
30	1	25	1	40
31	1	15	1	30
32	1	5	1	20
33	0	55	1	10
34	0	45	1	00
35	0	35	0	50
36	0	30	0	45
37	0	25	0	40
38	0	20	0	35
39	0	15	0	30
40	0	10	0	25
41	0	9	0	20
42	0	8	0	15
43	0	7	0	10
44	0	6	0	5
45	0	5	0	0

FINIS.

Δοξὰ Θεῷ.